Upper Rio Grande Workforce Development Board Industry Cluster Analysis

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Upper Rio Grande at Work

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Executive Summary: The Upper Rio Grande Workforce Development Board Area Industry Clusters

El Paso's economic history is varied, having gone from median family income levels that were on par with the United States and above that of Texas in 1950 to trailing both by almost one third in 2000.[1] The reasons for this decline range from increased migration and a changing demographic to a failed courtship with the garment industry that led El Paso to market itself as a low wage alternative to high wage U.S. economies. The latter of these was precipitated, at least in part, by research suggesting that the garment industry was El Paso's next, best hope for economic development. Few now dispute the fact that the garment industry failed to provide the type of growth necessary for a modern urban economy to flourish.

New methods are available for examining how regional economies function; and as such, these new methods provide local economic developers with insights that have been heretofore unavailable. Among the most promising and widely accepted planning tools focuses on the "clusters" that make up a regional economy. In the method selected for this study, clusters are identified as either "Benchmark Value Chain" or "Technology Based." These clusters then serve not only as the foundations of an economy, but in varied forms (Existing, Emerging, Potential) also provide insight into areas that can be developed to promote regional economic expansion. Moreover, these clusters each have specifically defined industries that employ specific occupations. Combined, the industry and occupation data can be used to select occupations that are worthwhile candidates for workforce training.

What is a "Cluster?"

Clusters were originally conceived by Michael Porter as fuzzy groups of businesses that fell outside the bounds of rigid SIC or NAICS designations that bought from and sold to one another within geographic and economic space. To add to the current confusion, what now determines a cluster differs by methodology. Location quotients and shift-share analyses alone do not; and different actual cluster studies tell different stories. Porter, for example, focuses on clusters that are either locally oriented, resource dependent, or trade or export oriented.[2] Unfortunately, detailed information on how industries are related is absent. This is overcome by Feser, who uses as his foundation the national input-output (I-O) accounts, which track in detail what industries sell to and buy from related industries.

The Feser methodology adopted for this study groups industries with their strongest customers and suppliers, creating "a distinct value chain for each industry."[3] This is accomplished via what is essentially a data reduction technique that provides a set of 45 "Benchmark Value Chain" clusters and 15 "technology based" clusters.

Benchmark Value Chain Clusters Identified for the Workforce Board Region

<u>Existing Clusters</u>

- Basic Health: Easily El Paso's largest cluster, employing over 42,000 people in 2942 firms.
- Construction: The 20,000 troops planned for Fort Bliss will no doubt provide a huge stimulus to this cluster, but at the some risk since the cluster must cope with a slow down once the region has absorbed the new troops.
- Hotels and Transportation: El Paso's importance as a port for goods imported and exported from and to Mexico is well known. It is in these cluster industries that wages exceed the average for El Paso, while overall cluster wages would seem to be on par with that of the rest of the county. Tourism plays a far more important role in the rural Workforce Board counties, particularly around Big Bend National Park.
- Information Services: The information services cluster is not only a major employer in the region (19,504) but is relatively well diversified (1841 firms). While the level of concentration for the cluster could be higher, positive growth over the 1991 to 2005 period is promising.
- Financial Services and Insurance: This cluster also exhibits high employment (25,355) and diversification (1443 firms), but more importantly has grown at a rate almost twice that of the cluster at the national level over the 1991 to 2005 period.

Emerging Clusters

- Higher Education and Hospitals: This cluster employs 41,286 people in 2636 firms, but is not particularly concentrated in the region. It has, however, posted faster growth than the United States over the 1991 to 2005 period. The development of a 4-year medical school in the county is also critical to this cluster's long term success.

Potential Cluster

- Appliances: While small in absolute employment terms compared to each of the clusters above, the appliance cluster exhibits some of the highest concentration levels of any of the Benchmark Value Chain clusters.

Technology Based Clusters Identified for the Workforce Board Region

Existing Cluster

- Engine Equipment: The only Existing Technology-based value chain cluster employed over 2,300 people in the first quarter of 2005 among 22 different firms and is the only technology cluster with any level of concentration in the region.

Emerging Cluster

- Information Services: This cluster has the largest employment of any of the Technology-based clusters, employing 3,803 employees among 138 firms, but lacks industry diversification and concentration.

Potential Clusters

- Computer and Electronic Equipment: This cluster exhibits little concentration and actually saw faster decline than its U.S. counterpart between 1991 and 2005, yet many focus group participants believe in the tie between border security and technology intensive industries in the region. There are also a variety of ongoing local effort that seek to use the El Paso ports as a laboratory for developing and testing these new technologies.
- Architectural and Engineering Services and Technical and Research Services: These clusters both exhibit a very low degree of concentration, but unlike other technology based clusters, showed positive growth and strong employment between 1991 and 2005. The lack of concentration in the region may also provide a strong targeted training opportunity.

Training for the Region and Its Clusters: An Occupation Forecast and Web-based System

The continued expansion of these clusters will rely on a variety of regional efforts—one key component of which is workforce training. Also introduced is an occupational forecast to allow regional planners and policy makers to set training priorities to develop clusters and to support region wide ("cross-cutting) industrial growth. This ensures that there will be sufficient growth in selected occupations to warrant training dollars. Targeted occupations that arise from regional growth and cluster development include registered nurses; elementary, middle, and secondary school teachers; truck drivers, electricians, and carpenters. However, the occupational forecast also shows several highly technical occupations that require training beyond what local workforce boards can typically provide. These include occupations such as accountants, operations managers, advertising managers, computer and math occupations, and architecture and engineering occupations. Specific strategies for overcoming this gap will depend on broad based partnerships and long-term planning. Both the tool and the forecast also focus on the fact that the cluster methodology, while extremely valuable, should not be the sole training guide. Overall regional growth should also be a focal point for training activities.

Strategic Recommendations for Regional and Cluster Development

Workforce Development Board Recommendations

Given the cluster and occupations findings, a set of broad ranging and cluster specific activities are needed to spur regional growth. Some are the sole province of the Workforce Board, but many rely on a variety of local partners. The Board can act as a key stakeholder to encourage local buy in and joint priority setting.

- Increase the participation/representation from targeted clusters on the Workforce Board.
- Analyze the specific jobs and related contracting opportunities being created at Fort Bliss as a result of BRAC in an effort to encourage new business development and identify occupational skill needs associated with the expected influx of workers.
- Develop a collaborative campaign with UTEP to attract talented students from outside the region to go to school in El Paso.
- Create a proactive initiative to provide career counseling information to area middle school and high school counselors, teachers, students (and their parents) regarding entry-level occupations related to occupations in targeted clusters.
- Collaborate with existing initiatives in the region aimed at encouraging more entrepreneurial behaviors among area workers – encouraging them to consider creating their own jobs – (through supporting "how-to-create-a-business" seminars and curricula).
- Assist area school systems in their efforts to implement reforms and encourage school efforts to ensure that students have basic skills and are computer literate.
- Encourage policy makers to assist UTEP and regional universities to take a more proactive role in developing programs that support the region's targeted industry clusters (by: supporting research in these areas; offering more incentives in the tenure-granting process to faculty who collaborate with area companies (or create their own companies based on new technologies jointly developed with university resources); encouraging entrepreneurship among the college's faculty members; and expanding curriculum related to these industry clusters).
- Provide support for financial literacy and the importance of "asset-building" as a life skill integrated into basic education curriculum.

Cluster-specific Recommendations

- Information Services and Engineering
    - Support economic development agency efforts to recruit defense contractors to service Fort Bliss and border security needs.
    - Ensure that regional universities and technology specific training centers continue to expand their higher level software engineering, database management, and network administration activities.
    - Review and support available training programs designed to provide introduction to computer programming.
    - Develop/support career information and apprenticeship opportunities by supporting apprenticeship programs that link more El Paso companies to UTEP and regional universities' engineering and computer sciences to small area companies (e.g., Innovation Philadelphia internship).
    - Support informal networking events among area information services companies on topics related to finding and keeping employees, identifying career opportunities for talented young adults at regional universities.
    - Encourage/support efforts by regional universities and trade schools to expand the exposure of engineering and computer technicians to design concepts and design-for-production tools.
- Construction Trades
    - Support efforts to expand apprenticeship programs in collaboration with area companies.
    - Develop a program in collaboration with SBDC to provide entrepreneurial training for sub-contracting opportunities and management training for potential sub-contractors.

    - Seed a program to offer cash bonuses to construction trades workers who complete their apprenticeship program within a time period specified by the Workforce Board.
    - Support the development of construction management degree program at UTEP and of construction management certification and related credits at EPCC and regional technical schools.
    - Develop a program to communicate opportunities and wages for construction trades occupations to high school students and young adults .
- Financial Services
    - Explore availability of existing financial services certification/licensing programs relative to needs to support entry level financial services staff for banking and insurance.
    - Offer more specific educational curriculum and enhance relationships with business and universities to expose more students to financial services careers.
    - Encourage community colleges to offer training in marketing and sales.
- Health care
    - Encourage expansion of educational programs (including Fast Track) to train teachers or other degree holders for nursing and other technical health care occupations.
    - Consider marketing El Paso as a private pay health care hub for Central and South America. The great majority of health care workers in the region are able to speak Spanish, making it an ideal location for exporting health care.
- Logistics—Hotel and Transportation Services
    - Expand training for truck drivers (CDLs) and truck/truck equipment maintenance.
    - Identify training opportunities related to occupations in logistics data management and analysis.
    - Encourage entrepreneurship among would-be jobseekers; creation of boutique firms focused on specialty transportation.

Upper Rio Grande Workforce Development Board Industry Cluster Analysis

Cluster Methodology: How they were intended

Economic developers often forget that clusters were originally thought of by Porter as groups of businesses, which fell outside the bounds of rigid SIC or NAICS designations, that bought from and sold to one another within geographic and economic space. In fact, the cluster concept has a common theoretical base with the work of economists and planners who couched their work in far less attractive language that focused on economic geography and agglomeration—all while Porter focused on competitiveness. The latter may be the reason that economic developers ascribe so many meanings to clusters—because they were fuzzy even when Porter conceived them. Nonetheless, Porter's characterization of clusters added an energy to his work that made it attractive. What analysts and policymakers must understand is that what determines a cluster now differs by methodology. Location quotients and shift-share analyses alone do not, as both are purely industry studies; and different actual cluster studies tell different stories. Porter, for example, focuses on clusters that are either locally oriented, resource dependent, or trade or export oriented. Detailed information on how industries are related—how they sell to and purchase from one another—is absent. Moreover, the Porter approach tends to focus on industries that are both trading and operating in common space (based on the use of state level data). Readers familiar with the El Paso economy understand that interest should focus on industries that are related far more in "economic space" than in "geographic space,"[4] particularly given El Paso's relative isolation in far west Texas and the absence of data for what truly constitutes El Paso's economic region, namely Cd. Juárez. That said, the key strength of the Feser methodology adopted for this study is its reliance on the national input-output (I-O) accounts as a foundation. The national input-output accounts track in detail what industries sell to and buy from related industries, which allows for study of what industries rely upon one another in economic space to survive. Grouping these co-supportive and co- dependent industries gets at the essence of Porter's original cluster concept from the Competitive Advantage of Nations far more than other methods currently allow.

Feser does this by grouping industries with their customers and suppliers, creating "a distinct value chain for each industry."[5] This is accomplished via what is essentially a data reduction technique. The data reduction process is such that it takes a 437 row by 437 column matrix identifying the selling and buying patterns of 437 industries and reducing them to 45 "Benchmark Value Chain" clusters. The same is done for a 111 by 111 matrix of technology intensive industries to provide 15 additional "Technology-based" clusters. The Benchmark Value Chain and Technology-based clusters then serve as valuable tools for regional analysts.

Because Feser begins with the national input-output accounts, researchers at the regional level can benchmark the performance of industries (thus the "Benchmark Value Chain clusters") within each cluster to national performance. In other words, does the set of industries that make up a cluster at the national level perform worse than, the same as, or better than the same regional industries? A set of industries grouped into a cluster performing better at the regional level provides key insight into what may be some level of regional competitive advantage. Poor performance, conversely, may be indicative of some key industry within the cluster nationally being absent at the regional level—a useful tool in business recruitment or the development of incentive packages.

The specific use of the cluster methodology will differ based on the varying goals of different research projects, but it is clear that the reduction of two huge sets of trading patterns into 60 clusters provides an invaluable tool for regional economic analysis and planning.

Practical Use—Performance Benchmarking

The specific application of the mode of inquiry provided by Feser has two goals here. First is the identification of clusters (benchmark and technology) that exist in the El Paso and Workforce Board region rural counties relative to national benchmarks. Second is the identification of targeted training

opportunities the Workforce Board may be able to support to enhance Existing, Emerging, or Potential clusters.

The performance benchmarking portion of this analysis is the most straightforward. Six digit NAICS industry employment data grouped into the 45 Benchmark Value Chain and 15 technology based clusters for the URGWDB counties are compared to the U.S. benchmarks for the same period. The periods selected for comparison in the table below (Table 11) are 1991 and 2005, with detailed results provided in Appendix A for all counties and varying time periods.

Before moving on to detailed results for the region, three key terms are essential for understanding how clusters are selected. While the actual number of clusters can be "fuzzed" to be greater than or less than 45 or 15 (respectively, for Benchmark Value Chain or Technology-based clusters), clusters are further defined for practical use as either Existing, Emerging, or Potential. Unlike the statistical methods and normative rules used to build the 60 clusters, there is less available guidance that clearly delineates where an Existing cluster begins and an Emerging cluster ends. The cutoffs are made quantitatively and qualitatively in that they rely on expert examination of the data and focus group follow-up to the statistical cluster results. The selection criteria for each type of cluster are defined as:

- Existing: These clusters tend to have a large, diversified number of firms operating in the region (in terms of industry and absolute number), a large number of employees, and a high level of concentration (as measured by location quotient). Existing clusters typically represent a region's productive core and also have strong wage performance and stability. The Textiles and Apparel cluster, for example, exhibits several of these characteristics, but shows rapid decline and very low wages relative to the U.S. and the region, making it a poor candidate as a focus for economic development planning.
- Emerging: These clusters, while potentially large, may lack key industries or be dominated by a small number of firms. A cluster might be made up of 15 industries. An Emerging cluster would show firms and employment in only about two thirds—or show employment only at the low end of industry association with the cluster.
- Potential: Employment in these clusters may be high, but may be dominated by one or a very small number of firms across very few industries that define a cluster. Potential clusters have a core set of establishments but may lack the strength to attract related firms in necessary industries.

A few additional instructions for the analysis below are warranted. First is a brief overview of location quotients (LQ), which are simply a measure of an industry or cluster's concentration in an area. A key tool in economic base theory, levels below 1 suggest that a region does not meet local demand for a certain good. Levels above 1 suggest not only concentration but specialization that allows the region to export a portion of the industry / cluster's output. The compound quarterly growth rate is a "smoothed" growth rate. The remaining tables measures are straight forward, although the bubble charts do warrant one note.

Ideally, each of the bubbles (cluster employment plotted in two space) would be above the regional wage average (bold horizontal line) and to the right of 1 on the x axis (bold vertical line). Very few industries in El Paso or the Workforce Board Area counties exhibit both, making identifying Existing clusters somewhat more difficult. There are several clusters with high wage rates and high employment levels that could develop a greater degree of concentration and move to the right along the x axis—such as Higher Education and Hospitals should Texas Tech Medical School open a four-year branch in El Paso.

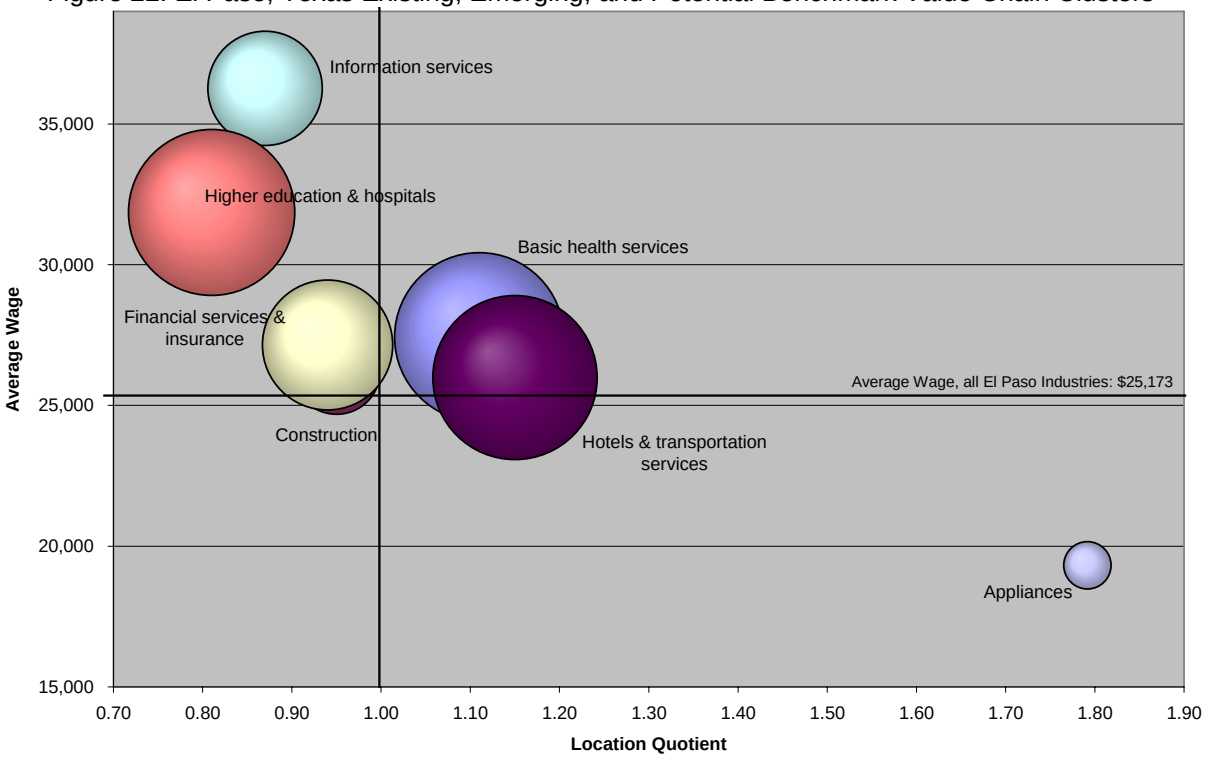
Cluster Results: El Paso, the North Interstate 10 corridor, and the South Interstate 10 corridor

El Paso Benchmark Value Chain Cluster Results

The El Paso economy has a variety of strengths—its military presence and strong service sector built in part around serving visitors from Mexico. Unfortunately, these industries are not necessarily productive; they are not involved in the production of some tangible good or service (that is not exclusively local[6]). But this was in part the reason that the Feser clusters were selected to study the regional economy. The Feser clusters allow researchers to focus on mapping El Paso's productive activities, not activities suited

to purely local serving production that typically have low wages. Because of El Paso's service and Military base, the economy did not fare particularly well when fitted at the six digit NAICS level to either the 45 Benchmark Value Chain clusters or the 15 Technology-based clusters. El Paso simply lacks activity in many productive industries—grouped by Feser or not. This is evident from examination of the location quotient column of the El Paso results below (Table 11), where upwards of 75 percent of the Benchmark Value Chain clusters fail to employ a sufficient number of individuals to meet local demand (LQ<1). Of the remaining clusters, many, such as textiles and apparel, have a very low wages relative to both the U.S. for the same cluster and for El Paso across all clusters. The nature of these results limits the ability of the researchers to define large sets of Existing, Emerging, and Potential clusters for both the Benchmark Value Chain and Technology-based industry groupings. Readers familiar with other regional studies that use a similar cluster methodology may note the selection of fewer Benchmark Value Chain and technology based clusters overall.

Figure 22: El Paso, Texas Existing, Emerging, and Potential Benchmark Value Chain Clusters



Existing Clusters

- Basic Health: This is easily El Paso's largest cluster, employing over 42,000 people across 2,942 firms. Population growth, the exporting of health services to Mexico, and BRAC all suggest that the cluster will remain at the core of the greater El Paso economy. The location quotient for this cluster is among the very few that is above one (1.11). Focus group comments suggest this is due in part to increased employment associated with lower wage levels relative to those of the United States. It is also highly likely that the high employment levels come from serving both paying and nonpaying customers from Mexico who demand health services.

- Construction: The construction cluster saw growth equal to that of the nation between 1991 and 2005, although this growth tapered off between 2002 and 2005. The 20,000 troops planned for Fort Bliss will no doubt provide a huge stimulus to this cluster and enhance local employment opportunity, helping push its location quotient over one. There is some risk in any construction employment build up associated with troop movements. Eventually the construction slows significantly or stops as the new demand has been met. The key to development in this cluster will be creating more highly skilled workers within the industry once the regional BRAC adjustment is made.

- Hotels and Transportation: This sector is included here not because of the focus on hotels or tourism, but because of El Paso's importance as a port for goods imported and exported from and to Mexico. It is in these cluster industries that wages exceed the average for El Paso, while overall cluster wages would seem to be on par with that of the rest of the county. Maquila employment is also improving as producers relocate to Mexico because of the difficulty of moving some finished goods from China to final market in the U.S quickly.

- Information Services: The information services cluster is not only a major employer in the region (19,504) but is relatively well diversified (1841 firms). While the level of concentration for the cluster could be higher (LQ=.81), positive growth over the 1991 to 2005 period is promising. These results are bolstered by focus group comments which suggest that local firms are beginning to outsource information technology functions at a higher rate than over the past decade. It should also be noted that several information services member industries have very low employment, and the level of concentration for the cluster in the region actually dropped slightly between 1991 and 2005. However, over the 2002 to 2005 period, Information Services growth has been positive, while at the national level, employment declined, which bolsters focus group comments.

- Financial Services and Insurance: This cluster also exhibits high employment (25,355) and diversification (1443 firms), but more importantly has grown at a rate almost twice that of the cluster at the national level over the 1991 to 2005 period. Increasing remittances to Mexico and an increased focus on cross-border banking have also helped to solidify this cluster within the region.

Emerging Cluster

- Higher Education and Hospitals: This cluster employs 41,286 people in 2636 firms, but is not particularly concentrated in the region. It has, however, posted faster growth than the U.S. over the 1991 to 2005 period. This cluster suffers from very low employment in several specific industries, which is likely an outgrowth of low educational attainment levels in the region. It will no doubt be helped should Texas Tech open a 4-year medical school in the county.

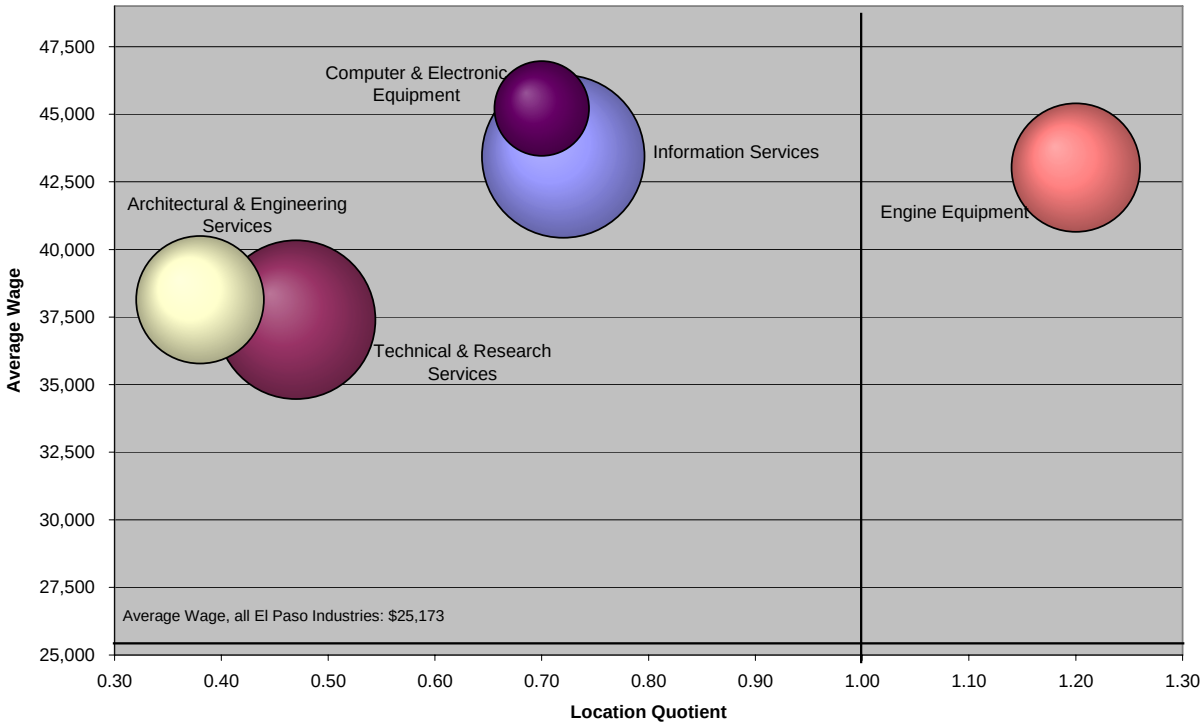
Potential Cluster

- Appliances: While small in absolute employment terms compared to each of the other clusters above, the appliance cluster exhibits some of the highest concentration levels of any of the Benchmark Value Chain clusters. Its growth was also well above that of the U.S. over the 1991 to 2005 period. Unfortunately, the appliance cluster pays low wages not only compared to the U.S. but only slightly above the El Paso average. The key to cluster development here is shifting production to more technology oriented products that can build upon an established production base both in El Paso and across the border.

El Paso Technology-based Cluster Results

As with the Benchmark Value Chain cluster results, only a small group of the Technology-based clusters present themselves as a core for the region's productive base based on the selection criteria defined above. One Existing cluster, one Emerging cluster, and three Potential clusters of 15 are selected for analysis.

Figure 23: El Paso, Texas Existing, Emerging, and Potential Technology Based Clusters



Existing cluster

- Engine Equipment: The only Existing Technology-based value chain cluster that falls within the Existing rubric is engine equipment, which employed over 2,300 people in the first quarter of 2005 among 22 different firms. While one-fifth the employment of many of the Benchmark Value Chain clusters, engine equipment is the only Technology-based cluster that exhibits any degree of specialization or concentration. With a location quotient of 1.2, this cluster likely serves in a portion of the needs of maquilas in Cd. Juarez which also produce automotive goods. Its growth over the 1991 to 2005 period was also well above that of the U.S., which saw a loss.

Emerging Cluster

- Information Services: This cluster has the largest employment of any of the Technology-based clusters, employing 3,803 employees among 138 firms. It is significantly less concentrated, with a location quotient of .72 and lacks many supporting industries that fall within the cluster. It did, however, grow at almost twice the rate of the United States cluster between 1991 and 2005. This would coincide with information services Benchmark Value Chain cluster comments which suggest that local firms are beginning to outsource some information technology services.

Potential Clusters

- Computer and Electronic Equipment: This cluster exhibits little concentration and actually saw faster decline than its U.S. counterpart, yet many focus group participants felt that there should be some tie

between border security and technology intensive industries in the region. Since many of the solutions to keeping the borders open will rely not only on software but hardware and computer solutions, this cluster is included here.

- Architectural and Engineering Services and Technical and Research Services: These clusters both exhibit a very low degree of concentration, but unlike other technology based clusters, showed positive growth and strong employment between 1991 and 2005. While the low levels of diversification and missing industries within the cluster may eventually prove to be obstacles that cannot be overcome, their strong employment should not be overlooked. The low location quotient also suggests that the cluster is not meeting local demand, a possible opportunity for increased training.

Table 11: Detailed Results Benchmark Value Chain and Technology Based Clusters

Summary trends, benchmark value chain clusters, 1991-2005
El Paso County

Clusters	Establishments IQ 2005	Employment IQ 2005	Per establishment	% all sectors IQ 2005	CQGR El Paso '91-'05	CQGR US '91-'05	Location Quotient IQ 2005	LQ Change '91-'05	2nd Quarter Payroll IQ 2005 mil $	Average Wage 3Q 1991	Ratio to US	Average Wage IQ 2005	Ratio to US	Ratio chng
Textiles & apparel	60	3,229	53.8	1.7	-3.2	-1.5	2.19	-3.3	20.4	13,861	0.79	25,330	0.80	0.02
Packaged food products	62	1,445	23.3	0.8	-1.7	-0.1	0.64	-0.8	8.4	14,583	0.65	23,229	0.70	0.05
Plastics & rubber manufacturing	12	636	53.0	0.3	-1.1	-0.6	0.57	-0.1	12.2	31,256	0.82	76,649	1.10	0.28
Aluminum & aluminum products	16	995	62.2	0.5	-0.2	-0.5	0.88	0.1	8.9	23,136	0.74	35,809	0.75	0.00
Basic health services	2,942	42,664	14.5	22.2	1.0	0.7	1.11	0.2	292.5	22,018	0.76	27,428	0.62	-0.15
Mining	9	50	5.6	0.0	0.3	-0.3	0.08	0.0	0.4	36,839	1.07	32,616	0.57	-0.50
Farming	80	621	7.8	0.3	-0.9	-0.5	0.60	-0.1	2.7	12,653	0.93	17,662	0.81	-0.13
Construction	978	11,445	11.7	5.9	0.6	0.6	0.95	0.0	75.1	16,705	0.63	26,233	0.67	0.04
Financial services & insurance	1,443	25,355	17.6	13.2	1.2	0.7	0.94	0.2	172.1	21,767	0.75	27,146	0.45	-0.30
Chemical-based products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Machine tools	77	1,442	18.7	0.7	1.5	-0.1	0.76	0.4	15.6	19,907	0.71	43,211	1.03	0.32
Precision instruments	11	648	58.9	0.3	-1.0	-0.6	0.91	-0.2	6.1	20,089	0.64	37,672	0.63	-0.01
Printing & publishing	243	2,538	10.4	1.3	0.0	0.2	0.57	-0.1	20.4	19,151	0.66	32,079	0.59	-0.07
Metalworking & fabr metal products	39	1,216	31.2	0.6	0.6	0.1	1.03	0.3	7.1	17,023	0.64	23,517	0.60	-0.04
Dairy products	23	442	19.2	0.2	-0.9	-0.1	0.68	-0.4	3.2	18,917	0.80	28,589	0.83	0.03
Nondurable industry machinery	62	2,160	34.8	1.1	0.2	-0.1	0.75	0.1	17.4	17,821	0.58	32,272	0.64	0.06
Computer & electronic equipment	51	1,559	30.6	0.8	-1.4	-0.5	0.63	-0.4	15.9	24,024	0.65	40,815	0.54	-0.12
Wood products & furniture	48	814	17.0	0.4	-0.9	-0.1	0.73	-0.4	3.7	13,903	0.69	18,115	0.58	-0.12
Const machinery & distribution equip	12	595	49.6	0.3	3.1	-0.3	0.54	0.4	4.2	22,495	0.72	27,954	0.53	-0.20
Wood processing	62	753	12.1	0.4	-0.1	0.0	0.51	0.0	3.3	13,169	0.66	17,452	0.56	-0.10
Paper	23	938	40.8	0.5	-0.3	-0.4	0.96	0.1	7.8	19,760	0.68	33,064	0.73	0.05
Concrete, brick building products	53	2,108	39.8	1.1	0.7	0.3	1.36	0.3	16.3	20,352	0.84	30,849	0.85	0.00
Motor vehicles	20	1,787	89.4	0.9	-0.4	0.1	0.80	-0.2	16.7	23,830	0.72	37,453	0.72	0.00
Wood building products	65	2,744	42.2	1.4	0.6	0.2	1.65	0.4	19.5	18,710	0.79	28,391	0.79	0.01
Plastics products	30	1,689	56.3	0.9	0.3	0.0	1.20	0.2	11.6	17,736	0.63	27,435	0.64	0.01
Feed products	91	747	8.2	0.4	-1.4	-0.2	0.54	-0.4	3.3	12,287	0.72	17,507	0.62	-0.10
Arts and media	1,506	16,255	10.8	8.4	0.0	0.3	0.83	-0.1	131.1	19,423	0.71	32,254	0.67	-0.05
Higher education & hospitals	2,636	41,286	15.7	21.4	0.6	0.5	0.81	0.1	328.8	20,730	0.79	31,857	0.68	-0.11
Information services	1,841	19,504	10.6	10.1	0.2	0.4	0.87	-0.1	176.8	22,467	0.71	36,262	0.64	-0.07
Petroleum & gas	60	2,087	34.8	1.1	-1.0	-0.4	0.87	-0.3	35.9	37,004	0.92	68,740	0.86	-0.06
Business services	2,650	39,611	14.9	20.6	0.6	0.6	0.93	0.0	279.1	19,413	0.72	28,180	0.53	-0.19
Grain milling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rubber products	16	473	29.6	0.2	0.1	-0.4	0.52	0.1	3.4	16,998	0.59	28,640	0.65	0.06
Glass products	14	388	27.7	0.2	0.9	-0.2	0.63	0.3	2.4	18,679	0.72	24,455	0.59	-0.13
Pharmaceuticals	6	276	46.0	0.1	3.8	0.0	0.29	0.3	2.7	20,519	0.57	39,628	0.51	-0.06
Steel milling	7	552	78.9	0.3	0.0	-0.6	1.61	0.5	4.1	19,791	0.56	29,629	0.51	-0.05
Nonresidential building products	204	3,968	19.5	2.1	0.4	0.3	0.99	0.0	31.5	21,483	0.69	31,750	0.63	-0.06
Tobacco products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Optical equipment & instruments	11	158	14.4	0.1	-2.9	-0.4	0.20	-0.5	1.4	16,783	0.59	36,166	0.68	0.09
Appliances	60	3,365	56.1	1.7	0.8	0.2	1.79	0.5	24.9	19,322	0.79	29,571	0.79	0.00
Copper & copper products	33	1,038	31.5	0.5	-0.9	-0.5	2.69	-0.4	14.5	31,226	1.12	55,686	1.28	0.16
Hotels & transportation services	2,187	40,260	18.4	20.9	1.1	0.6	1.15	0.3	261.6	17,882	0.77	25,992	0.64	-0.13
Aerospace	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Breweries & distilleries	7	548	78.3	0.3	-2.6	-0.5	0.94	-1.9	3.4	13,741	0.50	24,750	0.55	0.05
Leather products	37	1,094	29.6	0.6	-1.6	-1.1	4.14	-1.1	7.9	15,007	0.79	29,067	0.82	0.04
Total, establishments in VC sectors	7,177	125,215	17.4	65.0	0.2	0.3	n/a	n/a	950.0	19,253	0.71	30,347	0.63	-0.08
Total, all establishments	10,786	192,584	17.9	100.0	0.3	0.3	n/a	n/a	1,218.1	17,029	0.72	25,301	0.63	-0.10

Note: El Paso data are from the Texas Workforce Commission (ES-202 file, confidential release). El Paso region is defined as the six county Upper Rio Grande region (El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties). US data are from the US Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Clusters are not mutually exclusive. Data are only for businesses "covered" under unemployment insurance law and include only private sector establishments. CQGR: Compound quarterly growth rate. Sectors not assigned to any cluster include federal, state and local government; the US Postal Service; retail trade; basic consumer services; social services and religious organizations; and household employees.

Summary trends, benchmark technology-based value chain clusters, 1991-2005
El Paso County

Clusters	Establishments IQ 2005	Employment IQ 2005	Per establishment	% all sectors IQ 2005	CQGR El Paso '91-'05	CQGR US '91-'05	Location Quotient IQ 2005	LQ Change '91-'05	2nd Quarter Payroll IQ 2005 mil $	Average Wage 3Q 1991	Ratio to US	Average Wage IQ 2005	Ratio to US	Ratio chng
Chemicals	9	49	5.4	0.0	3.5	-0.6	0.09	0.1	0.5	35,560	0.91	38,485	0.54	-0.37
Precision instruments	7	178	25.4	0.1	-1.4	-0.5	0.36	-0.2	1.0	13,965	0.43	23,329	0.37	-0.06
Engine equipment	22	2,375	108.0	1.2	0.7	-0.2	1.20	0.5	25.5	17,982	0.57	43,028	0.84	0.27
Computer & electronic equipment	20	1,295	64.8	0.7	-1.6	-0.6	0.70	-0.4	14.6	24,767	0.65	45,208	0.55	-0.10
Information services	138	3,803	27.6	2.0	1.3	0.8	0.72	0.2	41.3	26,453	0.70	43,444	0.58	-0.13
Pharmaceuticals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fertilizer & chemical products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Industrial machinery & distribution equip	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aerospace	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Medical instruments and optics	10	194	19.4	0.1	-2.4	-0.5	0.27	-0.5	2.0	17,115	0.56	40,865	0.74	0.18
Motor vehicles	16	1,663	103.9	0.9	-0.6	0.0	0.96	-0.3	14.4	23,447	0.68	34,626	0.62	-0.05
Wiring devices & switches	151	1,295	8.6	0.7	-0.2	0.4	0.51	-0.2	12.4	26,334	0.76	38,250	0.66	-0.09
Technical & research services	385	3,629	9.4	1.9	0.5	0.9	0.47	-0.1	33.9	25,191	0.71	37,401	0.59	-0.12
Cable manufacturing	6	147	24.5	0.1	-1.5	-0.5	0.55	-0.4	1.2	21,941	0.75	31,850	0.64	-0.11
Architectural & engineering services	321	2,352	7.3	1.2	0.3	0.9	0.38	-0.1	22.4	25,978	0.70	38,141	0.55	-0.14
Total, all Tech VC establishments	579	11,970	20.7	6.2	0.1	0.2	n/a	n/a	123.9	24,690	0.69	41,395	0.62	-0.07
Total, all establishments	10,786	192,584	17.9	100.0	0.3	0.3	n/a	n/a	1,218.1	17,029	0.72	25,301	0.63	-0.10

Note: El Paso data are from the Texas Workforce Commission (ES-202 file, confidential release). El Paso region is defined as the six county Upper Rio Grande region (El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties). US data are from the US Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Clusters are not mutually exclusive. Data are only for businesses "covered" under unemployment insurance law and include only private sector establishments. CQGR: Compound quarterly growth rate. Sectors not assigned to any cluster include federal, state and local government; the US Postal Service; retail trade; basic consumer services; social services and religious organizations; and household employees.

North I-10 Corridor Benchmark Value Chain Cluster Results

Not surprisingly, the clusters that surface for the North Interstate 10 corridor are Farming, Dairy, and Feed Products, all of which have historically been the center pieces of this rural economy. Location quotients and employment levels for all others suggest low levels of industrial concentration. Focus group comments generally support these findings. Construction and Hotels and Transportation Services clusters also show modest employment strength, but lacked concentration or diversity. It should also be noted that a far smaller percentage of total employment is captured by the employment data used in this study because so many individuals in this region are sole proprietors (on their own businesses and therefore did not pay unemployment insurance). As such, this data (ES-202) may not be entirely reflective of actual cluster strengths in rural counties. That said, focus groups did not suggest major deviation from the cluster results that are available. The detailed tables for these findings are presented below. Unfortunately, no technology clusters present themselves for analysis.

Figure 24: North I-10 Corridor Benchmark Value Chain Clusters

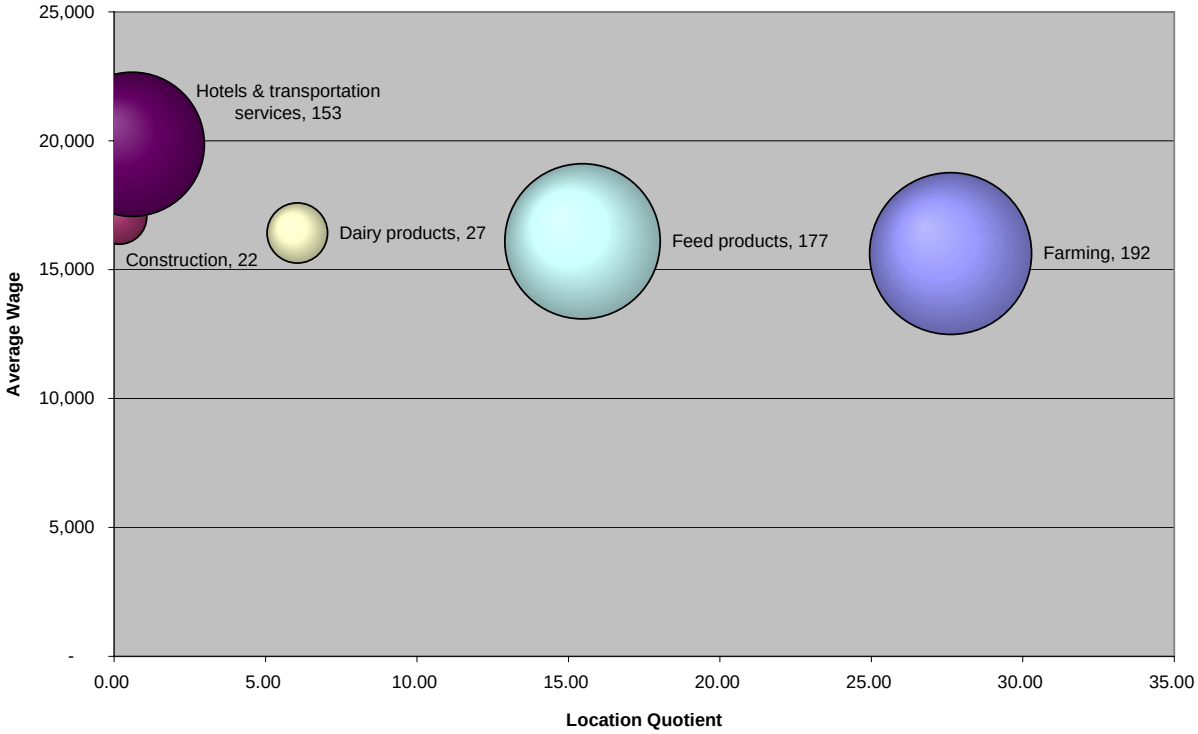


Table 12: Detailed Results North I-10 Benchmark Value Chain and Technology Based Clusters

Summary trends, benchmark value chain clusters, 1991-2005
North I10 Corridor (Hudspeth and Culberson Counties)

		Employment							2nd Quarter Payroll					
	Establishments			% all	CQGR		Location Quotient			Average Wage				
Clusters	IQ 2005	IQ 2005	Per establishment	sectors IQ 2005	N I-10 '91-'05	US '91-'05	IQ 2005	Change '91-'05	IQ 2005 mil $	3Q 1991	Ratio to US	IQ 2005	Ratio to US	Ratio chng
Textiles & apparel	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Packaged food products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Plastics & rubber manufacturing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aluminum & aluminum products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Basic health services	12	35	2.9	3.5	-1.6	0.6	0.13	-0.1	0.2	13,580	0.46	25,120	0.53	0.08
Mining	8	81	10.1	8.1	-3.4	-0.4	21.74	-47.9	0.5	36,290	1.07	25,884	0.47	-0.61
Farming	26	192	7.4	19.1	0.0	-0.5	27.61	14.1	0.8	11,158	0.82	15,627	0.71	-0.11
Construction	6	22	3.7	2.2	1.2	0.6	0.18	0.1	0.1	30,326	1.15	17,051	0.44	-0.71
Financial services & insurance	6	36	6.0	3.6	0.5	0.6	0.20	0.1	0.2	14,030	0.48	26,569	0.44	-0.04
Chemical-based products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Machine tools	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Precision instruments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Printing & publishing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Metalworking & fabr metal products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dairy products	7	27	3.9	2.7	-0.9	0.1	6.05	-0.4	0.1	11,439	0.51	16,417	0.52	0.00
Nondurable industry machinery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Computer & electronic equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wood products & furniture	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Const machinery & distribution equip	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wood processing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paper	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Concrete, brick building products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motor vehicles	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wood building products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Plastics products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Feed products	28	177	6.3	17.6	-0.5	-0.2	15.46	4.5	0.7	10,272	0.67	16,100	0.63	-0.04
Arts and media	6	22	3.7	2.2	-2.7	0.2	0.14	-0.3	0.1	10,783	0.39	19,325	0.39	0.01
Higher education & hospitals	20	162	8.1	16.2	-0.3	0.4	0.46	0.0	0.6	9,647	0.36	16,042	0.34	-0.02
Information services	8	47	5.9	4.7	-1.3	0.3	0.25	-0.1	0.4	14,781	0.46	34,395	0.60	0.14
Petroleum & gas	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Business services	19	146	7.7	14.6	-0.7	0.4	0.45	-0.1	0.6	10,266	0.38	15,429	0.30	-0.08
Grain milling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rubber products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Glass products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pharmaceuticals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Steel milling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nonresidential building products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tobacco products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Optical equipment & instruments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Appliances	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Copper & copper products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hotels & transportation services	21	153	7.3	15.3	-0.2	0.5	0.59	0.1	0.8	11,436	0.48	19,863	0.47	-0.01
Aerospace	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Breweries & distilleries	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Leather products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total, establishments in VC sectors	82	556	6.8	55.4	-1.2	0.3	n/a	n/a	2.9	23,852	0.88	20,560	0.43	-0.45
Total, all establishments	128	1,003	7.8	100.0	-0.6	0.3	n/a	n/a	4.2	20,209	0.86	16,877	0.42	-0.44

Note: El Paso data are from the Texas Workforce Commission (ES-202 file, confidential release). El Paso region is defined as the six county Upper Rio Grande region (El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties). US data are from the US Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Clusters are not mutually exclusive. Data are only for businesses "covered" under unemployment insurance law and include only private sector establishments. CQGR: Compound quarterly growth rate. Sectors not assigned to any cluster include federal, state and local government; the US Postal Service; retail trade; basic consumer services; social services and religious organizations; and household employees.

Summary trends, benchmark technology-based value chain clusters, 1991-2005
North I10 Corridor (Hudspeth and Culberson Counties)

		Employment							2nd Quarter Payroll					
	Establishments			% all	CQGR		Location Quotient			Average Wage				
Clusters	IQ 2005	IQ 2005	Per establishment	sectors IQ 2005	N I-10 '91-'05	US '91-'05	IQ 2005	Change '91-'05	IQ 2005 mil $	3Q 1991	Ratio to US	IQ 2005	Ratio to US	Ratio chng
Chemicals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Precision instruments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Engine equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Computer & electronic equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Information services	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pharmaceuticals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fertilizer & chemical products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Industrial machinery & distribution equip	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aerospace	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Medical instruments and optics	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motor vehicles	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wiring devices & switches	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Technical & research services	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cable manufacturing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Architectural & engineering services	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total, all Tech VC establishments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total, all establishments	128	1,003	7.8	100.0	-0.6	0.3	n/a	n/a	4.2	20,209	0.86	16,877	0.42	-0.44

Note: El Paso data are from the Texas Workforce Commission (ES-202 file, confidential release). El Paso region is defined as the six county Upper Rio Grande region (El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties). US data are from the US Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Clusters are not mutually exclusive. Data are only for businesses "covered" under unemployment insurance law and include only private sector establishments. CQGR: Compound quarterly growth rate. Sectors not assigned to any cluster include federal, state and local government; the US Postal Service; retail trade; basic consumer services; social services and religious organizations; and household employees.

South I-10 Corridor Benchmark Value Chain Cluster Results

South of Interstate 10, Farming, Dairy, and Feed Products are still viable rural clusters, although Hotels and Transportation Services is the third largest employment cluster (1,163) in the region. This is due to Big Bend National Park and a myriad of ecotourism firms in the region. It should be noted that the same data limitations mentioned above apply to the South Interstate 10 corridor as well. The wood products cluster also shows some strength as a potential cluster in that its small number of firms had some concentration (LQ=.69) and showed growth well above that of the US 1991-2005. The rapid percentage growth, however, may be due to small overall employment totals.

Figure 25: South I-10 Corridor Benchmark Value Chain Clusters

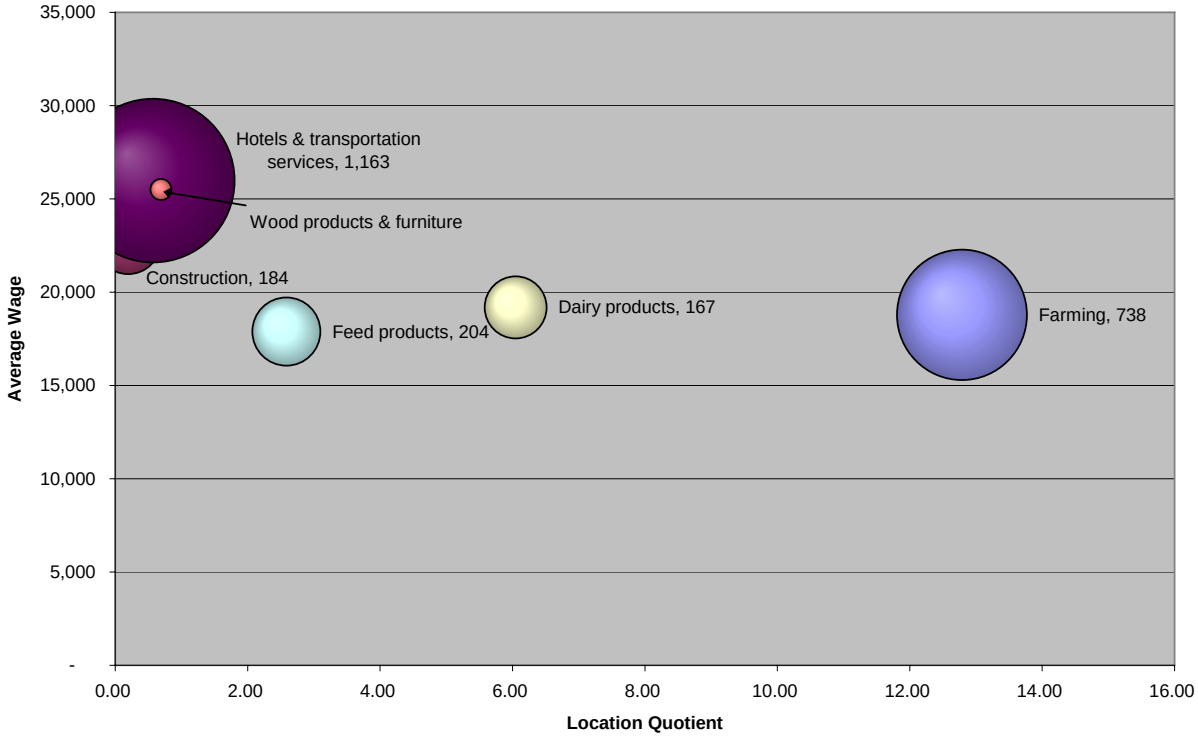


Table 13: Detailed Results South I-10 Benchmark Value Chain and Technology Based Clusters

Summary trends, benchmark value chain clusters, 1991-2005
South I10 Corridor (Jeff Davis, Presidio & Brewster Counties)

		Employment							2nd Quarter Payroll					
					CQGR		Location Quotient			Average Wage				
Clusters	Establishments IQ 2005	IQ 2005	Per establishment	% all sectors IQ 2005	S I-10 '91-'05	US '91-'05	IQ 2005	Change '91-'05	IQ 2005 mil $	3Q 1991	Ratio to US	IQ 2005	Ratio to US	Ratio chng
Textiles & apparel	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Packaged food products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Plastics & rubber manufacturing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aluminum & aluminum products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Basic health services	97	581	6.0	11.6	1.8	0.6	0.24	0.1	5.1	16,955	0.57	34,894	0.76	0.19
Mining	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Farming	43	738	17.2	14.7	1.0	-0.2	12.79	3.3	3.5	9,973	0.71	18,786	0.86	0.15
Construction	48	184	3.8	3.7	0.7	0.6	0.20	-0.1	1.0	16,629	0.63	22,716	0.58	-0.05
Financial services & insurance	57	352	6.2	7.0	1.1	0.5	0.24	0.0	2.6	19,867	0.66	29,676	0.47	-0.19
Chemical-based products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Machine tools	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Precision instruments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Printing & publishing	12	43	3.6	0.9	1.2	0.1	0.23	0.0	0.4	14,940	0.53	37,906	0.73	0.20
Metalworking & fabr metal products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dairy products	36	167	4.6	3.3	-0.1	0.2	6.05	-4.4	0.8	10,092	0.47	19,190	0.64	0.16
Nondurable industry machinery	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Computer & electronic equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wood products & furniture	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Const machinery & distribution equip	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wood processing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paper	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Concrete, brick building products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motor vehicles	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wood building products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Plastics products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Feed products	45	204	4.5	4.1	-0.3	-0.1	2.59	-1.6	0.9	9,362	0.64	17,895	0.73	0.09
Arts and media	77	431	5.6	8.6	1.3	0.3	0.32	0.0	3.4	12,758	0.46	31,115	0.65	0.19
Higher education & hospitals	133	1,527	11.5	30.5	1.7	0.4	0.54	0.1	9.7	12,485	0.49	25,360	0.57	0.08
Information services	83	400	4.8	8.0	1.3	0.4	0.27	0.0	4.6	25,634	0.80	46,293	0.82	0.02
Petroleum & gas	11	120	10.9	2.4	0.7	-0.5	1.12	0.2	1.5	31,312	0.76	48,667	0.57	-0.18
Business services	128	1,217	9.5	24.3	1.5	0.4	0.48	0.1	8.2	13,911	0.50	26,900	0.50	-0.01
Grain milling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rubber products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Glass products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Pharmaceuticals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Steel milling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nonresidential building products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tobacco products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Optical equipment & instruments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Appliances	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Copper & copper products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hotels & transportation services	112	1,163	10.4	23.2	1.1	0.5	0.57	0.0	7.6	16,413	0.70	25,975	0.63	-0.08
Aerospace	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Breweries & distilleries	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Leather products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total, establishments in VC sectors	371	3,402	9.2	67.9	1.1	0.4	n/a	n/a	21.9	14,404	0.54	25,710	0.55	0.01
Total, all establishments	567	5,007	8.8	100.0	1.0	0.3	n/a	n/a	27.5	12,771	0.54	21,937	0.54	0.00

Note: El Paso data are from the Texas Workforce Commission (ES-202 file, confidential release). El Paso region is defined as the six county Upper Rio Grande region (El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties). US data are from the US Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Clusters are not mutually exclusive. Data are only for businesses "covered" under unemployment insurance law and include only private sector establishments. CQGR: Compound quarterly growth rate. Sectors not assigned to any cluster include federal, state and local government; the US Postal Service; retail trade; basic consumer services; social services and religious organizations; and household employees.

Summary trends, benchmark technology-based value chain clusters, 1991-2005
South I10 Corridor (Jeff Davis, Presidio & Brewster Counties)

		Employment							2nd Quarter Payroll					
					CQGR		Location Quotient			Average Wage				
Clusters	Establishments IQ 2005	IQ 2005	Per establishment	% all sectors IQ 2005	S I-10 '91-'05	US '91-'05	IQ 2005	Change '91-'05	IQ 2005 mil $	3Q 1991	Ratio to US	IQ 2005	Ratio to US	Ratio chng
Chemicals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Precision instruments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Engine equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Computer & electronic equipment	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Information services	16	119	7.4	2.4	0.8	0.7	0.52	-0.2	1.5	38,583	1.04	49,303	0.67	-0.37
Pharmaceuticals	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Fertilizer & chemical products	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Industrial machinery & distribution equip	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Aerospace	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Medical instruments and optics	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Motor vehicles	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Wiring devices & switches	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Technical & research services	18	103	5.7	2.1	2.8	0.8	0.31	0.1	1.3	15,509	0.44	50,614	0.82	0.38
Cable manufacturing	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Architectural & engineering services	16	35	2.2	0.7	1.0	0.8	0.14	0.0	0.4	15,267	0.41	45,134	0.66	0.25
Total, all Tech VC establishments	30	212	7.1	4.2	1.4	0.3	n/a	n/a	2.7	34,142	0.96	50,670	0.77	-0.19
Total, all establishments	567	5,007	8.8	100.0	1.0	0.3	n/a	n/a	27.5	12,771	0.54	21,937	0.54	0.00

Note: El Paso data are from the Texas Workforce Commission (ES-202 file, confidential release). El Paso region is defined as the six county Upper Rio Grande region (El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster counties). US data are from the US Bureau of Labor Statistics, Quarterly Census of Employment and Wages. Clusters are not mutually exclusive. Data are only for businesses "covered" under unemployment insurance law and include only private sector establishments. CQGR: Compound quarterly growth rate. Sectors not assigned to any cluster include federal, state and local government; the US Postal Service; retail trade; basic consumer services; social services and religious organizations; and household employees.

Strategic Recommendations to Support Cluster and Regional Growth

Based on the findings from the cluster analysis as well as input from a series of seven industry cluster focus groups, a number of potential strategies were identified to address the training and educational needs of the region's workforce. In the following pages, the proposed recommendations that might be implemented are divided into two major categories: strategic cross-cutting (region wide) recommendations and cluster-specific actions. The cross-cutting recommendations are aimed at improving the quality of the region's overall workforce and would assist growing companies in almost any cluster (as does the occupation approach below). The cluster-specific suggestions are aimed at addressing specific gaps identified by industry leaders to reinforce economic and workforce development efforts targeted to that cluster.

Strategic Cross-cutting Recommendations

The cross-cutting recommendations are aimed at reinforcing the creative leadership guiding regional workforce investments as Board-related training initiatives, many are targeted to broader efforts aimed at broader educational needs and strategies to respond to industry demand that includes talent attraction as well as development efforts.

<u>Increase the participation/representation from targeted clusters on the Workforce Board:</u>

- The Upper Rio Grande Workforce Development Board (WDB) should engage representatives from several targeted clusters including information services, financial services, construction trades, healthcare, logistics/border security, and tourism industries to participate in board activities. While some of these industries may be/are already involved with the Board, it is crucial that the Board engage CEOs of companies in these industries to participate in Board planning and program implementation issues. An important way to engage these stakeholders is to focus certain WDB meetings on broad topics specific to one or more of these industries while minimizing the WDB time spent on managing specific program activities. The WDB will want to delegate program management activities as much as possible to its staff and retain an oversight role, reviewing program performance toward addressing the needs of its targeted clusters.

<u>Develop a collaborative campaign with UTEP to attract talented students from outside the region to go to school in El Paso</u>

- Almost every cluster representative noted the severe talent shortage available as El Paso loses its best and brightest to other areas of the country (especially Phoenix, Dallas, and Houston). UTEP is well-known as a commuter school with a reported 95 percent of students from the greater El Paso region. While some of the region's best students go away to college, the El Paso region does not have a reputation for attracting students from other parts of the country. The region has a number of advantages that might appeal to students, especially those interested in developing an international education. The WDB should work with UTEP to develop a proactive student recruitment campaign aimed at attracting and retaining outside students to the region.

<u>Expand existing efforts to increase access to "career-oriented" internships for students of regional universities</u>

- Any campaign to attract students to the region should be supplemented with a retention strategy. The best way to retain the region's brightest graduates is to help them become "connected" while they are in school. This is a particular challenge for students who are not from the El Paso region. The WDB should explore collaborative efforts with UTEP to expand the number of students with access to part-time "career-oriented" jobs. Frequently, smaller companies are willing to take on one or two interns, but the companies need guidance in identifying appropriate linkages to the university and possibly even filtering potential candidates. This is time that small companies without a human resources office rarely have so possible internship opportunities are never offered. By creating a formal system targeted to the area's smallest companies in the

WDB's targeted clusters, El Paso may be able to provide immediate job opportunities and help retain students who might otherwise seek jobs outside the region.

Create pro-active initiative to provide career counseling information to area middle school and high school counselors, teachers, students (and their parents) regarding entry-level occupations in targeted clusters

- The WDB should develop a formalized effort to work with area schools to enhance the information provided to young adults about career opportunities – especially in the targeted clusters. A number of approaches might be used to accomplish this goal, including providing access to web-based tools designed to provide students with information about careers of interest as well as creating a network of adults who might serve as mentors for students seeking information about careers of interest. Several models of these types of initiatives exist across the country. One example is Future4Kids (www.f4k.org), a nonprofit based in North Carolina that works with school systems in building just such technology-driven career counseling support.

Collaborate with existing initiatives in the region aimed at encouraging more entrepreneurial behaviors among area workers – encouraging them to consider creating their own jobs

- For many rural and smaller metropolitan areas, the key to economic prosperity is related to the region's ability to foster innovation and new business formation. In many of the targeted clusters, workers with experience can become successful entrepreneurs. The WDB should support "how-to-create-a-business" seminars and curricula in all of their education and training initiatives. The Board should collaborate with the area small business development center to offer information about creating a business for those who may be interested in taking that route to employment.

Assist area school systems in their efforts to implement reforms and encourage school efforts to ensure that students have basic skills and are computer literate

- Almost every business person interviewed agreed that area schools are not adequately preparing students for the workplace. This opinion is being expressed in every community across the nation. Businesses indicate that they are not expecting fully trained workers, but they do expect to hire high school graduates who can read instructions, perform basic computational tasks, work in teams, and solve problems creatively. Others noted that schools no longer provide basic vocational skills for students that are not going on to college and this limits students' exposure to many potentially lucrative career opportunities. If the schools were successful in addressing these challenges, the training job facing the WDB would be a bit less daunting. The WDB must actively participate in school reform discussions and offer their perspectives on potential solutions.

Analyze the specific jobs and related contracting opportunities being created at Fort Bliss to identify occupational skill needs associated with the expected influx of new workers and new jobs

- Fort Bliss is expected to receive about 20,000 new military and civilian personnel in the next few years. If it has not already done so, the WDB should sponsor research to determine the specific skills of the new jobs being brought to El Paso and determine which ones will likely need to be filled by local workers. Likewise, the Board should examine the skills of incoming spouses to determine what types of jobs they will require and provide that information to economic developers to help guide job creation efforts. The Board may also wish to use the information about in-migrating spouses to develop specialized training programs aimed at targeted clusters that represent the greatest opportunity for new job creation, including financial services, health care, and information technology.

Advocate to academic leadership and Austin policy makers on behalf of area universities to expand their support for targeted clusters

- The WDB should take an advocacy role in encouraging UTEP, EPCC and Sul Ross as the universities expand to fill the ever increasing education and research needs of the El Paso region. Among the advocacy positions that the Board could take would include:
  - supporting research in related cluster areas at UTEP and regional universities;
  - offering more incentives in the tenure-granting process to faculty who collaborate with area companies;
  - encouraging entrepreneurship among the college's faculty members; and
  - expanding curriculum related to the WDB's targeted industry clusters.

Provide support for financial literacy and information about the importance of "asset-building" as a life skill for all residents that is integrated into basic education curriculum

- The Workforce Board should work closely with area social service agencies to support programs aimed at improving the economic position of low and moderate income individuals in the region. Financial literacy is a critical building-block on which to help workers succeed of all income categories. Building on programs offered by the military for its young recruits as well as other existing programs, the Workforce Board can expand the availability of this curriculum to all area high school, college, and entry level workers. The Board may need to identify incentives (such as successful program completers would be eligible to receive a $100 Certificate of Deposit or some similar "bonus") to encourage broad participation in the program.

Cluster-specific Recommendations

Not only should the WDB support broad initiatives, it should also design its training and program activities to respond to the specific needs among the Existing, Emerging, and Potential clusters. The targeted clusters of particular interest to the WDB include: (a) information services and engineering; (b) construction trades; (c) financial services, (d) health care; and for rural counties in particular (e) tourism. The clusters were determined through a combination of quantitative analysis and qualitative research. Based on focus group discussions with local experts as well as our understanding of the efforts underway in other areas of the country, we propose the following a potential actions to help in enhancing the competitiveness of the labor force for each of these industry clusters. The actions are all designed to support job creation and workforce preparation efforts.

Information Services and Engineering

Support economic development agency efforts to recruit defense contractors to service Fort Bliss, border security needs

- This task might be accomplished by collaborating with economic developers in designing a recruitment strategy that includes proactive identification of workforce training options to support likely defense contractors.

Support UTEP and the and technology specific initiatives to expand software engineering, database management, and network administration educational programs

- A number of local companies noted a need for added computer software engineers and analysts. They also noted that UTEP and other technology trainers as a critical resource. The Workforce Board should collaborate with these institutions to ensure the programs continue to expand.

Review and support available training programs designed to provide introduction to computer programming

- Many companies noted that they sought access to semi-skilled workers who had some exposure to basic principles of computer programming. The primary benefit of this exposure is to provide an introduction to the field for young adults and potential entry level workers. These programs might be offered through vocational high school or community college programs.

Develop/support career information and internship opportunities in computing careers

- By supporting an internship program, the Workforce Board will expand links between existing El Paso companies and education/training options such as UTEP's engineering and computer sciences as well as area trade schools. The focus of the internship program should be on helping small area companies access 1 or 2 interns at a time and to encourage those companies to use these internships as a technique for finding possible new workers.

Collaborate with economic developers to support informal networking events among area information services companies

- The focus of these networking events would be on any topics of interest to the companies, but one area of particular interest will be on strategies designed to recruit and retain employees. The events might also include topics related to identifying career opportunities for talented young adults at regional universities or similar topics.

Encourage/support efforts by UTEP, EPCC and Sul Ross and technical schools to expand the educational curriculum for engineering and computer technicians to include design and design-for-production concepts

- Some experts report that existing higher educational curriculum is too oriented to traditional engineering and computer science theory. To respond more effectively to the knowledge-driven economy, educational programs should integrate computer-aided design into all aspects of the region's engineering programs.

Construction Trades

Support efforts to expand apprenticeship programs in collaboration with area companies

- The Workforce Board should focus its limited resources on efforts aimed at expanding the capacity of local training and educational institutions to meet critical shortages expected in carpentry, electrical, painting, first-line supervising, and flexible construction laborers region-wide. Many apprenticeship programs are reactive, allowing open enrollment for anyone who expresses an interest. Few of these applicants are motivated by gaining a career opportunity. Instead, many are interested in apprenticeships primarily as a short-term avenue for gaining access to a job. Since the apprenticeship program represents a significant investment for the company, the public sector, and the individual, it is incumbent that apprenticeship slots be reserved for those most motivated to complete the program.

- Given the general public policy interest in offering opportunities for minorities and women and the willingness of minorities and women to participate in apprenticeships, continued efforts should be targeted to encouraging women and minority apprentices. The images associated with these advertisements should demonstrate the participation of minorities currently working in the trades or participating in apprenticeships. The increased number of women and minorities in the construction trade also provide additional stream of laborers that can help reduce the pressure of the labor shortages in the construction industry.

- To support expansion of the apprenticeships, the WDB might also provide more funding for "apprenticeship financial aid" (to supplement tuition or wages) to allow the apprentice to attend full-time training courses. This will help apprentices to learn the required skills in a shorter period of time and allow them to work full-time for the industry without as much of a classroom commitment during work days.

Develop a program in collaboration with regional SBDC to provide entrepreneurial training for sub-contracting opportunities and management training for potential sub-contractors

One of the most important ways to increase workforce participation in the trades may well be to help motivated workers understand potential opportunities for owning their own business. This is an invaluable approach in expanding the availability of sub-contractors in the region. Several ideas could help in expanding the number of trades-related entrepreneurs including:

- Incorporate more management training into the apprenticeship program, especially for occupations in which the technician may be managing apprentices, laborers, or helpers. Effective management may reduce the drop-out rate by apprentices and help to reduce the high turnover rate that burdens many contractors.
- Provide entrepreneurial training that helps technicians and first-line supervisors understand the elements of running a business, including how to estimate jobs, administer payrolls, manage cash flow, make investment decisions, and choose good employees.
- Provide a "construction trades extension service" program to provide on-going support to firm managers. The purpose of the service is to increase awareness about and use of the latest in building materials technologies or methods for improving efficiency and quality in construction.
- Support efforts to expand the availability of skilled managers with technical experience in construction-related fields.

Many construction trades firms reported that skilled managers are in short supply. Three strategies might be employed to expand the number of managers available to support the industry:

- Support the development/expansion of construction management degree program at UTEP and of construction management certification and related credits at community college/technical schools.
- Create a "management" apprenticeship in which technicians are put into "assistant management training" aimed at developing competent and respected first-line supervisors, both from a technical perspective (as in the supervisor learns about trades not within his or her area of expertise) as well as providing management experience.
- Develop an initiative to encourage high school students, entry-level workers, and apprentices to move into these target occupations.The WDB might also develop a proactive program to communicate opportunities and wages for construction trades occupations to high school students and young adults. The program should include a career pathway map that demonstrates how continuously improving skills can enhance their earning power.

Financial Services

<u>Explore the availability of existing financial services certification/licensing programs relative to needs to support entry level financial services staff for banking and insurance</u>

- Many financial services firms are currently hiring, but they are increasingly requiring staff to obtain training and certification in order to maintain their jobs. The WDB should conduct an analysis of the demand for additional workers in this field, an assessment of available training programs, and identify gaps that might help guide its investment in appropriate initiatives.

<u>Offer more specific educational curriculum and enhance relationships with business and universities to expose students to financial services careers</u>

- The Workforce Development Board should develop a network of financial services firm representatives and related educational program managers to help in framing the educational needs and responses for the financial services cluster. The network would meet to review existing challenges, identify appropriate program models, and design plans for implementing those plans. If appropriate, the network might serve as a specialized ad hoc committee of the WDB.

<u>Encourage community colleges to offer training in marketing and sales</u>

- Several financial service firms noted that marketing and sales skills are critical for workers in the field. The Workforce Board should collaborate with regional universities to develop and implement a marketing and sales program targeted for financial services workers.

Health care

Encourage expansion of educational programs (including Fast Track) to train teachers for nursing and other technical health care occupations

- One of the fastest growing industries is health care, and El Paso is an important center for basic health care services. The area needs to meet a shortage of skilled nurses, medical technicians, and medical administrative workers. The shortage is due in part to a lack of training slots available. The Workforce Development Board should continue to expand its efforts to increase the number of teachers for health care-related occupational training.

Logistics and Border Security

Expand training for truck drivers (CDLs) and trucking maintenance

- El Paso is an important location for the North American trucking industry and logistics firms are in need of more drivers and maintenance workers. The WDB should work with the community college to expand the availability of these programs.

Identify training opportunities related to occupations in logistics management and data analysis

- Increasingly logistics firms manage a substantial amount of data. The Workforce Board should assess how many more administrative workers will be required to serve the field and support efforts to expand training available for logistics managers and data analysts. These jobs will be particularly important as border security initiatives are implemented during the coming years.

Work in collaboration with local economic development partners to foster the development of specialty transportation firms

- The WDB should encourage would-be jobseekers with experience to consider alternatives in entrepreneurship in logistics management, transportation, and security fields. Career counseling efforts should include information about new business development opportunities.

Tourism

Provide access to customer service and sales training to support the hospitality industry

- The hospitality industry is an important job creator in rural regions and El Paso. The local universities (Sul Ross) should examine the availability of programs that they offer to ensure that they are providing appropriate sales and service support training.

Provide continued support to the “master’s guides program”

- The rural communities, especially in the Big Bend area of the state, rely on outdoor tourism activities. The WDB should collaborate closely with area colleges and training institutes to expand on existing “master guides programs” and other initiatives to support the workforce needs of area tourism operators.

Encourage proprietor start-ups of tourism- and agricultural-related businesses

- Working in collaboration with the local SBDC and area universities, the WDB should support counseling in entrepreneurship and training in business management for area job-seekers

interested in creating tour operator firms, eco-tourism enterprises, or similar small business operations.

Explore opportunities for creating hospitality management and entrepreneurial business management programs at Sul Ross State University

- The WDB should examine the availability of and support the development of new programs in related hospitality and business management programs at area universities, especially in the WDB's rural region.

Targeted Occupations: Industry Forecast and Application of Occupational Matrix

Having identified cluster strengths in the region, it is possible to perform industry level forecasts to help select industries that would benefit from training assistance. Industries, however, are composed of individuals from a variety of different occupations—as even the construction industry, for example, employs accountants. Provided below is an overview of a web based system (temporarily http://tools.utep.edu/iped) that will allow Workforce Board planners and policy makers to target training based on forecast industry growth. The system allows users to track clusters, individual industries, and the region as a whole (all industries at a detailed level). The latter is provided because overall job growth in some occupations—while vital to a cluster—may not be sufficiently large to attract or warrant training dollars. This has been the case in the past, but policy makers might consider programs which train for high skill occupations in large groups—such as tuition assistance for engineers or architects—to provide highly skilled labor to the region in addition to intermediate skill training.

The System: Employment Correspondence Estimates Between NAICS (4-digit) – SOC (6-digit)

The IPED NAICS-SOC Estimates web interface is a query system that allows users to link industry employment with occupational employment. Since industries employ a multitude of occupations, the program allows users to query all occupations and their employment and wage information. These data are employed by individual or several 2-, 3-, or 4-digit NAICS industry groups or by the pre-defined value-chain or technology cluster groups indicated in this report. The occupations information is the *output*, which the program provides, while the industry information is the *input*, which the user enters. Furthermore, the occupations output is provided as a baseline and forecast. The baseline tells the user current employment and wages per occupation from the designated industry or industries while the forecast tells the user expected future employment in the same occupations. Forecasts are based on the IPED *Border Model*. Wages are current wages based on latest available data and include average, entry and median wages.

To obtain a regional occupation-industry employment mix, one key assumption is made – the program assumes that the regional occupation-industry mix is identical to the United States mix. The program calculates a set of ratios of occupational employment at the national level and maps these ratios to a designated regional industry employment number to obtain the regional mix. The employment number can be entered manually or calculated automatically from internal databases (a manual entry can act as a baseline or forecast, allowing the analyst to control for a specific employment number and answer “what if?” questions).

The rationale for assuming that the regional employment mix is similar to the national mix is two-fold. First, detailed occupational-industry estimates are only provided at the national level. This approach is the best alternative given missing data at both the state (TWC) and regional levels. Second, assuming that the regional mix is similar to the national mix provides valuable insight about the regional economy. Analysts can identify gaps and opportunities by triangulating regional mix results based on national ratios with other available regional information. For example, analysis of Basic Health Services shows that the occupation 319091 Dental Assistants has significant employment and growth potential and currently pays an entry wage of $10.39. Most current occupations data from the TWC for the region also show that dental assistants comprise about 0.14 percent of all occupations in the URG region, versus 0.21 percent at the national level. The TWC also projects the occupation to add roughly 150 new jobs by the year 2012, while IPED estimates provided as part of the economy-wide projections show this occupation adding roughly 180 new jobs by 2014. In this occupation example, the analyst can see that dental assistants earn a relatively high entry wage and an even better median wage. The analyst can also identify a potential gap and growth opportunity since relative to the nation the region employs less of its labor supply in this occupation and is expected to add a substantial number of jobs. Clearly, using the national mix as a proxy identifies potential regional occupational employment opportunities and their wages which can be easily verified with current regional data.

The IPED NAICS-SOC Estimates web interface also provides economy-wide baseline and forecast information on occupations for the region (versus occupations per subsets of the economy such as clusters or various industry groups as discussed above). This part of the program provides two sets of estimates. The first set of estimates uses current TWC occupations data for the region and, hence, does not assume parity with the national mix. The second set of estimates does assume similarity between the regional and national industry-occupational mix. Similar to the above discussion, these latter estimates are provided to identify potential gaps and opportunities in occupations taking the nation as reference.

Region Wide and Cluster Specific Applications

Targeted occupations can be drawn from any of the clusters above—whether they are applied as Existing, Emerging, or potential. This does not, however, guarantee that there will be sufficient job growth by specific occupation in each of the clusters to support the allocation of training dollars. This is because several hundred occupations might be necessary for any given six digit industry to function properly. Instead, there must be sufficient job growth overall—region wide—to make training for specific occupations worthwhile (Table 14 below). The inclusion of the cluster industries in this system allows users to tie overall industry standard occupational classification needs to cluster standard occupational classification needs. The combination of the two will allow the Workforce Board to support growth in the entire region while being mindful of and tracking occupation needs for identified clusters. Overall results are presented below, while a full list of all occupations and growth for the Workforce Board region is provided in Appendix B.

Table 14: Upper Rio Grande Top Job Growth Occupations

Rank	SOC	SOC Title	URG Emp. Estimates		Emp. Jobs Growth 2004-2014	Emp. Rate Growth 2004-2014	2004 Hourly Wages			
			2004	2014			Avg.	Entry	Experienced	Median
	000000	Total, All Occupations	262,850	300,565	37,715	14.35%	$13.82	$6.47	$17.49	$10.30
1	353021	Combined Food Preparation and Serving W	8,680	10,976	2,296	26.45%	$6.38	$5.92	$6.61	$6.26
2	399021	Personal and Home Care Aides	3,870	5,726	1,856	47.95%	$6.06	$5.89	$6.14	$6.14
3	291111	Registered Nurses	4,360	5,723	1,363	31.25%	$24.10	$16.00	$28.15	$24.27
4	353031	Waiters and Waitresses	4,550	5,888	1,338	29.41%	$6.43	$5.90	$6.69	$6.19
5	412031	Retail Salespersons	11,140	12,260	1,120	10.05%	$8.68	$5.93	$10.05	$7.49
6	412011	Cashiers	7,950	9,032	1,082	13.61%	$7.02	$5.93	$7.56	$6.72
7	434051	Customer Service Representatives	4,030	5,081	1,051	26.09%	$11.44	$8.54	$12.89	$11.33
8	533032	Truck Drivers, Heavy and Tractor-Trailer	5,250	6,248	998	19.00%	$14.44	$9.53	$16.90	$13.86
9	252021	Elementary school teachers, except special	4,750	5,669	919	19.35%	$21.16			$21.46
10	311011	Home Health Aides	1,710	2,593	883	51.61%	$6.70	$5.94	$7.08	$6.38
11	333051	Police and Sheriff's Patrol Officers	2,140	2,908	768	35.90%	$20.92	$15.48	$23.64	$21.57
12	372011	Janitors and Cleaners, Except Maids and Ho	4,560	5,320	760	16.67%	$7.39	$5.98	$8.10	$6.77
13	252031	Secondary school teachers, except special a	3,200	3,923	723	22.58%	$21.06			$21.28
14	111021	General and Operations Managers	3,510	4,102	592	16.87%	$36.09	$16.57	$45.85	$29.86
15	259041	Teacher assistants	2,220	2,802	582	26.23%	$25.75			$25.52
16	339032	Security Guards	3,140	3,705	565	18.00%	$8.35	$5.97	$9.54	$6.99
17	439061	Office Clerks, General	5,620	6,169	549	9.76%	$9.33	$6.43	$10.78	$8.76
18	472061	Construction Laborers	2,240	2,787	547	24.44%	$8.92	$6.94	$9.91	$8.78
19	311012	Nursing Aides, Orderlies, and Attendants	1,680	2,211	531	31.58%	$8.98	$7.13	$9.91	$8.39
20	352014	Cooks, Restaurant	1,860	2,325	465	25.00%	$7.54	$6.33	$8.15	$7.61
21	499042	Maintenance and Repair Workers, General	2,900	3,358	458	15.79%	$11.33	$7.04	$13.48	$10.18
22	434171	Receptionists and Information Clerks	1,820	2,251	431	23.68%	$8.58	$6.41	$9.66	$8.08
23	434111	Interviewers, Except Eligibility and Loan	1,650	2,063	413	25.00%	$12.52	$8.06	$14.76	$12.41
24	351012	First-Line Supervisors/Managers of Food Pr	1,910	2,281	371	19.44%	$11.50	$6.88	$13.82	$10.40
25	319092	Medical Assistants	660	1,006	346	52.38%	$9.94	$7.23	$11.29	$9.37
26	533022	Bus Drivers, School	1,790	2,131	341	19.05%	$8.08	$6.12	$9.05	$7.43
27	252022	Middle school teachers, except special and	2,430	2,770	340	14.00%	$20.17			$19.97
28	533033	Truck Drivers, Light or Delivery Services	2,000	2,333	333	16.67%	$12.14	$6.67	$14.88	$9.46
29	352021	Food Preparation Workers	1,170	1,482	312	26.67%	$6.97	$5.96	$7.47	$6.89
30	411011	First-Line Supervis./Managers of Retail Sale	2,820	3,113	293	10.39%	$16.42	$10.00	$19.63	$14.13
31	433011	Bill and Account Collectors	920	1,196	276	30.00%	$10.80	$8.16	$12.12	$10.12
32	132011	Accountants and Auditors	1,280	1,543	263	20.51%	$24.62	$16.60	$28.63	$22.94
33	436011	Executive Secretaries & Administrative Assis	2,350	2,599	249	10.61%	$14.41	$10.45	$16.39	$13.48
34	373011	Landscaping and Groundskeeping Workers	1,200	1,447	247	20.59%	$7.99	$5.99	$8.99	$7.68
35	292061	Licensed Practical and Licensed Vocational	1,040	1,268	228	21.88%	$16.59	$13.14	$18.32	$16.15
36	472111	Electricians	980	1,203	223	22.73%	$17.66	$12.73	$20.13	$18.10
37	359011	Dining Room and Cafeteria Attendants and	880	1,100	220	25.00%	$6.15	$5.89	$6.27	$6.16
38	399011	Child Care Workers	1,180	1,400	220	18.64%	$6.61	$5.92	$6.96	$6.38
39	252041	Special education teachers, preschool, kinde	680	884	204	30.00%	$21.48			$21.33
40	251194	Vocational Education Teachers, Postsecond	520	715	195	37.50%	$16.10	$10.49	$18.90	$14.47
41	412021	Counter and Rental Clerks	1,110	1,295	185	16.67%	$8.39	$5.89	$9.64	$7.11
42	431011	First-Line Supervisors/Managers of Office ar	2,820	3,005	185	6.56%	$17.65	$10.80	$21.08	$16.67
43	333021	Detectives and Criminal Investigators	640	823	183	28.57%	$26.41	$18.41	$30.41	$25.46
44	292052	Pharmacy Technicians	600	780	180	30.00%	$11.58	$9.59	$12.58	$10.99
45	319091	Dental Assistants	360	540	180	50.00%	$11.92	$10.39	$12.68	$11.95
46	359031	Host & Hostess, Restaurant, Lounge & Coffe	650	827	177	27.27%	$6.20	$5.92	$6.34	$6.23
47	211012	Educational, Vocational, and School Counse	620	797	177	28.57%	$22.71	$17.05	$25.54	$23.56
48	537062	Laborers & Freight, Stock & Material Movers	6,530	6,703	173	2.65%	$7.83	$5.99	$8.76	$6.97
49	472031	Carpenters	1,290	1,458	168	13.04%	$10.23	$8.26	$11.22	$9.91
50	359021	Dishwashers	950	1,118	168	17.65%	$6.15	$5.90	$6.27	$6.18

An example of total growth is provided in the table above (Table 14), which shows URGWDB area total occupational growth to 2014 (37,715). By 25 on the absolute growth list (medical assistants), only about 35 new jobs will be created per year (in addition to replacement). While this may support Basic Health cluster, absolute growth may not warrant training dollars in the same way that growth in registered nurses may (close to 100 new jobs per year). Thus, while both occupations support the Basic Health cluster, only registered nurses shows substantial absolute growth that would warrant training dollars, particularly given the higher than average entry wage.

Further, an SOC such as school teachers also warrants particular attention since teachers do not fall into one of the productive industries measured by the Benchmark Value Chain or technology based clusters. Teachers not only earn higher than average wages, but help the region overcome low levels of educational attainment, a benefit to all clusters, Existing, Emerging, or Potential.

Provided as an example of cluster SOC cluster growth are the Basic Health and Construction (Tables 15-18). These tables demonstrate that beyond the top few occupations, very few occupations exhibit the growth that may be the necessary catalyst for training dollars—a key reason to group higher skill occupations and develop a strategy to expand high skill training. The tables also demonstrate how system output can be used to select cluster occupations by wage level. Those that do may not meet entry wage thresholds established by the Board over time.

Table 15: Upper Rio Grande Basic Health Services Cluster Top Job Growth Occupations

Emp. Rank	SOC	SOC Title	URG Emp. Estimates from U.S. NAICS-SOC Estimates		Emp. Growth 2005-2015	URG Hourly Entry Wage	URG Hourly Median Wage
			2005	2015			
	Total	**Basic Health Services Cluster**	**42,385**	**58,065**	**15,680**	**$6.47**	**$10.30**
1	537062	Laborers & freight, stock & material movers	1,843	2,524	682	$5.99	$6.97
2	414012	Sales reps, wholesale & manufacturing, exc	1,685	2,308	623	$10.26	$18.58
3	372011	Janitors & cleaners, except maids & housek	1,585	2,171	586	$5.98	$6.77
4	439061	Office clerks, general	1,460	2,000	540	$6.43	$8.76
5	291111	Registered nurses	957	1,311	354	$16.00	$24.27
6	434051	Customer service representatives	931	1,276	345	$8.54	$11.33
7	434171	Receptionists and information clerks	902	1,236	334	$6.41	$8.08
8	373011	Landscaping and groundskeeping workers	899	1,232	333	$5.99	$7.68
9	433031	Bookkeeping, accounting and auditing clerk	867	1,187	321	$7.83	$11.29
10	436014	Secretaries, except legal, medical and exec	788	1,080	292	$6.63	$9.54
11	132011	Accountants and auditors	717	983	265	$16.60	$22.94
12	231011	Lawyers	696	953	257	$25.69	$44.69
13	111021	General and operations managers	673	922	249	$16.57	$29.86
14	436011	Executive secretaries and administrative as	654	896	242	$10.45	$13.48
15	431011	First-line supervisors/managers of office an	621	851	230	$10.80	$16.67
16	512092	Team assemblers	573	785	212	$5.98	$6.82
17	319092	Medical assistants	570	781	211	$7.23	$9.37
18	319091	Dental assistants	497	681	184	$10.39	$11.95
19	533032	Truck drivers; heavy and tractor-trailer	490	671	181	$9.53	$13.86
20	436013	Medical secretaries	474	649	175	$7.20	$9.14
21	311011	Home health aides	469	643	174	$5.94	$6.38
22	414011	Sales representatives; wholesale and manu	465	637	172	$18.00	$29.49
23	433021	Billing and posting clerks and machine oper	463	634	171	$7.53	$10.06
24	537064	Packers and packagers; hand	458	628	170	$5.95	$6.54
25	435081	Stock clerks and order fillers	450	617	167	$5.96	$7.73
26	533033	Truck drivers; light or delivery services	444	608	164	$6.67	$9.46
27	436012	Legal secretaries	442	605	164	$11.29	$14.48
28	433011	Bill and account collectors	428	586	158	$8.16	$10.12
29	435071	Shipping; receiving; and traffic clerks	428	586	158	$7.07	$9.63
30	419041	Telemarketers	426	583	157	$7.30	$9.94

* Highlighted - Occupations that pay entry wages between $7 and $9.

Table 16: Upper Rio Grande Basic Health Services Cluster Top Job Growth Occupations between $9.50 and $11.00

Entry Wage Rank	URG Emp. Estimates from TWC 2002	2012	Emp. Growth 2002-2012	URG Emp. Estimates from U.S. NAICS-SOC Estimates 2005	2015	Emp. Growth 2005-2015	URG Hourly Entry Wage	URG Hourly Median Wage
	Total	**Basic Health Services Cluster**	**98.13%**	**42,385**	**58,065**	**15,680**	**$6.47**	**$10.30**
137	499012	Control and valve installers and repairers; exc	0.01%	4	6	2	$10.99	$13.99
138	194091	Environmental science and protection technici	0.06%	24	33	9	$10.93	$14.63
139	431011	First-line supervisors/managers of office and a	1.47%	621	851	230	$10.80	$16.67
140	499052	Telecommunications line installers and repaire	0.01%	6	8	2	$10.80	$19.87
141	472152	Plumbers; pipefitters; and steamfitters	0.04%	16	22	6	$10.74	$14.79
142	211091	Health educators	0.03%	13	18	5	$10.63	$14.25
143	119031	Education administrators; preschool and child	0.00%	0	0	0	$10.61	$13.09
144	433061	Procurement clerks	0.06%	24	33	9	$10.55	$13.66
145	251194	Vocational education teachers; postsecondary	0.00%	1	1	0	$10.49	$14.47
146	434061	Eligibility interviewers; government programs	0.00%	1	2	0	$10.49	$15.11
147	436011	Executive secretaries and administrative assis	1.54%	654	896	242	$10.45	$13.48
148	472161	Plasterers and stucco masons	0.00%	1	1	0	$10.44	$12.59
149	173019	Drafters; all other	0.02%	10	14	4	$10.41	$16.45
150	319091	Dental assistants	1.17%	497	681	184	$10.39	$11.95
151	434141	New accounts clerks	0.00%	0	1	0	$10.30	$12.25
152	435011	Cargo and freight agents	0.01%	6	8	2	$10.27	$13.37
153	414012	Sales representatives; wholesale and manufa	3.97%	1,685	2,308	623	$10.26	$18.58
154	211021	Child; family; and school social workers	0.05%	19	27	7	$10.25	$15.04
155	492011	Computer; automated teller; and office machi	0.27%	115	158	43	$10.23	$13.55
156	493031	Bus and truck mechanics and diesel engine s	0.19%	82	113	30	$10.18	$13.30
157	194099	Life; physical; and social science technicians;	0.05%	23	31	8	$10.12	$15.05
158	472021	Brickmasons and blockmasons	0.01%	5	7	2	$10.06	$12.94
159	131022	Wholesale and retail buyers; except farm proc	0.25%	108	148	40	$10.05	$17.40
160	411011	First-line supervisors/managers of retail sales	0.14%	60	82	22	$10.00	$14.13
161	531021	First-line supervisors/managers of helpers; lal	0.18%	78	107	29	$9.99	$13.34
162	271025	Interior designers	0.05%	21	28	8	$9.97	$16.84
163	492096	Electronic equipment installers and repairers;	0.00%	2	2	1	$9.95	$11.34
164	271024	Graphic designers	0.11%	48	66	18	$9.85	$13.46
165	435041	Meter readers; utilities	0.00%	1	1	0	$9.84	$10.84
166	519071	Jewelers and precious stone and metal worke	0.01%	5	7	2	$9.76	$13.74
167	519051	Furnace; kiln; oven; drier; and kettle operators	0.00%	0	0	0	$9.68	$14.28
168	211015	Rehabilitation counselors	0.03%	11	15	4	$9.59	$13.16
169	292052	Pharmacy technicians	0.06%	27	36	10	$9.59	$10.99
170	519012	Separating; filtering; clarifying; precipitating; a	0.03%	13	18	5	$9.56	$14.44
171	533032	Truck drivers; heavy and tractor-trailer	1.16%	490	671	181	$9.53	$13.86
172	439022	Word processors and typists	0.17%	74	102	27	$9.52	$11.85
173	173012	Electrical and electronics drafters	0.05%	22	30	8	$9.51	$15.34
174	292012	Medical and clinical laboratory technicians	0.26%	112	154	41	$9.50	$11.93
175	531011	Aircraft cargo handling supervisors	0.00%	0	0	0	$9.50	$11.97

* Highlighted - Occupations with significant employment.

Table 17: Upper Rio Grande Construction Cluster Top Job Growth Occupations

Rank	SOC	SOC Title	Emp. % of Total	URG Emp. Estimates from U.S. NAICS-SOC Estimates		Emp. Growth 2005-2015	URG Hourly Entry Wage	URG Hourly Median Wage
				2005	2015			
	Total	**Construction Cluster**	**99.04%**	**19,428**	**22,003**	**2,575**	**$6.47**	**$10.30**
1	512092	Team assemblers	14.45%	2,808	3,180	372	$5.98	$6.82
2	517042	Woodworking machine setters, operators, &	10.03%	1,949	2,207	258	$5.85	$6.76
3	472031	Carpenters	6.83%	1,327	1,502	176	$8.26	$9.91
4	517041	Sawing machine setters, operators, & tende	5.27%	1,024	1,160	136	$5.84	$6.90
5	517011	Cabinetmakers & bench carpenters	4.59%	892	1,011	118	$7.23	$8.29
6	537062	Laborers and freight; stock; and material mo	4.48%	871	986	115	$5.99	$6.97
7	519198	Helpers--production workers	3.81%	740	838	98	$6.02	$6.95
8	511011	First-line supervisors/managers of productio	3.61%	702	795	93	$12.50	$19.53
9	537051	Industrial truck and tractor operators	2.94%	571	647	76	$6.35	$8.57
10	537063	Machine feeders and offbearers	2.82%	548	620	73	$6.66	$9.26
11	414012	Sales representatives; wholesale and manu	2.15%	418	474	55	$10.26	$18.58
12	512099	Assemblers and fabricators; all other	1.63%	316	358	42	$6.18	$6.93
13	111021	General and operations managers	1.43%	278	315	37	$16.57	$29.86
14	533032	Truck drivers; heavy and tractor-trailer	1.40%	272	308	36	$9.53	$13.86
15	519061	Inspectors; testers; sorters; samplers; and w	1.37%	266	302	35	$6.32	$8.16
16	519199	Production workers; all other	1.30%	253	287	34	-	-
17	499042	Maintenance and repair workers; general	1.27%	247	279	33	$7.04	$10.18
18	439061	Office clerks; general	1.24%	241	273	32	$6.43	$8.76
19	435071	Shipping; receiving; and traffic clerks	1.06%	206	233	27	$7.07	$9.63
20	433031	Bookkeeping; accounting; and auditing clerk	1.05%	205	232	27	$7.83	$11.29
21	517099	Woodworkers; all other	1.05%	205	232	27	-	-
22	514031	Cutting; punching; and press machine sette	1.00%	195	221	26	$6.03	$8.77
23	537064	Packers and packagers; hand	0.88%	171	194	23	$5.95	$6.54
24	472061	Construction laborers	0.85%	166	188	22	$6.94	$8.78
25	434051	Customer service representatives	0.82%	160	181	21	$8.54	$11.33
26	519121	Coating; painting; and spraying machine set	0.82% #	160	181	21	$6.68	$8.88
27	113051	Industrial production managers	0.76% #	147	167	20	$23.07	$33.16
28	533033	Truck drivers; light or delivery services	0.66% #	129	146	17	$6.67	$9.46
29	473012	Helpers--carpenters	0.62% #	121	137	16	$6.90	$8.62
30	499041	Industrial machinery mechanics	0.62% #	120	136	16	$8.96	$14.28

* Highlighted - Occupations that pay entry wages between $7 and $9.

Table 18: Upper Rio Grande Construction Cluster Top Job Growth Occupations between $9.50 and $11.00

Rank	SOC	SOC Title	Emp. % of Total	URG Emp. Estimates from U.S. NAICS-SOC Estimates		Emp. Growth 2005-2015	URG Hourly Entry Wage	URG Hourly Median Wage
				2005	2015			
	Total	**Construction Cluster**	**99.04%**	**19,428**	**22,003**	**2,575**	**$6.47**	**$10.30**
44	299011	Occupational health and safety specialists	0.02% #	3	3	0	$11.83	$13.28
45	492094	Electrical and electronics repairers; comme	0.01% #	2	3	0	$11.72	$16.63
46	537021	Crane and tower operators	0.02% #	4	5	1	$11.46	$14.33
47	131071	Employment; recruitment; and placement sp	0.01% #	2	3	0	$11.20	$15.25
48	151041	Computer support specialists	0.10% #	20	22	3	$11.16	$15.91
49	531031	First-line supervisors/managers of transport	0.14% #	27	30	4	$11.11	$18.04
50	413099	Sales representatives; services; all other	0.06% #	12	13	2	$11.01	$22.12
51	431011	First-line supervisors/managers of office an	0.50% #	98	111	13	$10.80	$16.67
52	472152	Plumbers; pipefitters; and steamfitters	0.12% #	23	26	3	$10.74	$14.79
53	433061	Procurement clerks	0.04% #	7	8	1	$10.55	$13.66
54	436011	Executive secretaries and administrative as	0.43% #	84	96	11	$10.45	$13.48
55	173019	Drafters; all other	0.10% #	20	22	3	$10.41	$16.45
56	414012	Sales representatives; wholesale and manu	2.15% #	418	474	55	$10.26	$18.58
57	493031	Bus and truck mechanics and diesel engine	0.03% #	5	6	1	$10.18	$13.30
58	131022	Wholesale and retail buyers; except farm pr	0.02% #	4	4	0	$10.05	$17.40
59	411011	First-line supervisors/managers of retail sal	0.02% #	4	4	0	$10.00	$14.13
60	531021	First-line supervisors/managers of helpers;	0.30% #	58	66	8	$9.99	$13.34
61	271025	Interior designers	0.02% #	3	3	0	$9.97	$16.84
62	271024	Graphic designers	0.02% #	4	4	0	$9.85	$13.46
63	519051	Furnace; kiln; oven; drier; and kettle operato	0.31% #	60	68	8	$9.68	$14.28
64	519012	Separating; filtering; clarifying; precipitating;	0.01% #	2	3	0	$9.56	$14.44
65	533032	Truck drivers; heavy and tractor-trailer	1.40% #	272	308	36	$9.53	$13.86
66	434161	Human resources assistants; except payroll	0.17% #	34	38	4	$9.42	$12.81
67	433051	Payroll and timekeeping clerks	0.21% #	41	47	5	$9.38	$12.86
68	514111	Tool and die makers	0.04% #	7	8	1	$9.38	$17.20
69	499043	Maintenance workers; machinery	0.25% #	48	54	6	$9.25	$12.87
70	173011	Architectural and civil drafters	0.18% #	36	41	5	$9.14	$14.21
71	419099	Sales and related workers; all other	0.04% #	7	8	1	$9.12	$12.56

* Highlighted - Occupations with significant employment.

Appendix A
Economic Setting: El Paso, North I-10 Corridor, South I-10 Corridor

El Paso County Demographic and Economic Overview

Population and Demographics

In mid-year 2004, El Paso was the state's sixth largest county with a population of 713,123, behind only Harris, Dallas, Tarrant, Bexar, and Travis (Table 1; Census). Between 2000 and 2004, the county's population grew by another 33,504 residents (4.9 percent), primarily from natural increase (43,769 more births than deaths). Over these four years, the county also experienced negative net migration as 10,042 more persons migrated out of El Paso than migrated in. Roughly 32 percent of the population are under the age of 18, and 10 percent are above age 65. Hispanics of all races comprise over 81 percent of the residents and the gender ratio is roughly 52 percent female and 48 percent male. Of the persons 25 years and older (Census 2000), 5 percent had an Associates degree, 11 percent had a Bachelors degree, and 5.6 percent had a graduate or professional degree (compared to 6.3, 15.5 and 8.9 percent at the national level). These relatively low levels of educational attainment pose a regional development and growth challenge as shifting priority to support regional clusters will require more individuals with higher levels of education. By 2040 El Paso's population is projected to reach 1.1 million with Hispanics of all races increasing their share of the total population to 90 percent (Office of the State Demographer recommended scenario).

The county covers 1,015 square, giving it a population density of 702.59 residents per square mile. The population for the city of El Paso in 2004 was 592,099 (83 percent of the county population). After 1990 the city's population increased 76,757 or 15.9 percent compared to an increase of 121,516 or 20.5 percent for the county.

Table 1. El Paso Overview

Population (2004)	713,126	Labor Force (2004)	290,119
Growth Rate since 1990	20.5%	Labor Force Participation Rate	56.7%
25 & Over No High School	34.2%	Unemployment Rate	7.8%
25 & Over High School	22.6%	Full- and Part-time Employment (2003)	333,658
25 & Over Some College or Degree	43.2%	Growth Rate since 1990	23.7%
Per Capita Personal Income (2003)	$20,875	Wage & Salary Employment	281,511
Percent of U.S. Per Capita	66.3%	Avg. Wage & Salary per Job	$27,228
Per Capita Transfer Payments	$4,100	Proprietors Employment	52,147
Poverty Level All Ages (2003)	25.7%	Farm Proprietors Jobs	481
Poverty Level 0-17 Ages	36.1%	Nonfarm Proprietors Jobs	51,666
Median Household Income (2003)	$31,086	Farm Employment	1,040
Households (2000)	210,022	Nonfarm Employment	332,618
Avg. Household Size	3.2	Private Jobs	261,683
Median House Value	$69,600	Government Jobs	70,935
Home Ownership Rate	63.6%	Gross Retail Trade Sales (2004)	$7.33 billion

Sources: Census, BLS, BEA, TCPA, and author's calculations

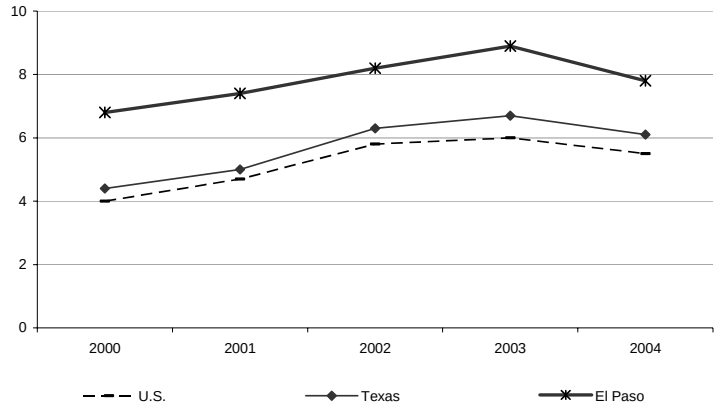
Economy

Historically, El Paso, like other large southern border cities, has developed a concentration of economic activity resulting from its geographic location – in government, manufacturing, retail trade, and transportation and distribution services. Manufacturing, retail trade, transportation, and various service industries have a strong positive correlation to economic activity in Cd. Juárez, in particular to its maquiladora export production. In this respect, El Paso functions both as a land port for transshipments and as a binational regional production network for the North American market (small border cities, such as Nogales and Laredo, function purely as land ports or intermediaries).[7] Professional, business, educational, and health services will be important sectors for employment growth in El Paso as the economy transitions from primarily intermediate production and distribution to more diversified sectors driven by regional demand from population growth and personal income. Education and proper regional planning to induce higher paying industries will determine the extent of this structural change.

Unemployment, Income and Government

El Paso's jobless rate has historically been well above the nation and state but has narrowed slightly over the past few years. The county's unemployment rate of 7.8 percent in 2004 was 2.3 (Table 1; BLS) and 1.7 percentage points above the nation and Texas annual averages, respectively. Correlated to high unemployment is poverty, which afflicts 1 in 4 of the county's population with the poverty level greater among children (17 and under) (Table 1; Census). In 2004, El Paso's labor force participation rate which measures an economy's ability to provide jobs, and its labor force's willingness to seek jobs was 56.7 percent (Table 1), compared to national and Texas participation rates of 64.5 and 65.3 percent, respectively. This low participation rate may either be a function of culture or discouraged job seekers who no longer count themselves as part of the workforce.

Figure 1. Unemployment Rates (in percents)



Source: BLS

High jobless rates, poverty levels, and low labor force participation rates—as well as low per capita income levels and educational attainment—have also characterized southern border regions, including El Paso.[8] Regional population growth (almost doubling since 1970), from both legal and illegal immigration and high birth rates, has fueled a threefold growth in gross regional product (from $5.5 billion in 1970 to $15.4 billion in 2000) and boosted real purchasing power by 54 percent in the last three decades.[9] However, this rapid growth has outstripped any employment gains and has contributed to the area's low per capita income.

El Paso's per capita income in 2003 of $20,875 stood at two-thirds the national level of $31,472 and 71.8 percent the state level of $29,074 (Table 1; BEA). Ten years earlier in 1993, per capita income in the county was $17,506 (in 2003 real dollars – adjusted for inflation), 64.4 percent the national level and 70.5 percent the state level. Per capita transfer payments totaled $4,100 in 2003, meaning that 19.6 percent (almost 1 out of every 5 dollars) of the county's per capita income came from transfer payments

(compared to the U.S.' 14.6 percent and Texas' 12.8 percent). Increasing per capita income growth relative to the United States and Texas and shifting to a greater share of income based on earnings and dividends, interest and rent at the expense of transfer payments are critical to narrowing the income and poverty gaps.

A concentration of public programs (state and federal) attempting to address the economic and educational disadvantages, as well as the military and border enforcement, have made government at all levels an integral part of the region's employment base. The area's relatively young population (almost one-third is under 18 years old), The University of Texas at El Paso (UTEP), UTEP School of Nursing, Texas Tech University Health Science Center, and El Paso Community College have increased local government demand for teachers at all levels. The Immigration and Naturalization Service enforcement along the border, U.S. Customs Service enforcement at the international bridges, various other state and federal agencies that track and monitor international flows, and the large military presence at Fort Bliss[10] are the other government presence in the region that also play a role in regional economic development and government.

Employment

Full- and part-time employment in El Paso reached 333,658 in 2003. The top six employers in El Paso are public sector entities. Healthcare and telecommunication firms dominate the top ten private sector employers (Tables 2 and 3). All but two of the top ten employers are government related. The largest nonfarm, private employment sectors in El Paso are 1) retail trade, 2) health care and social assistance, 3) manufacturing, and 4) accommodation and food services (Figure 2).

Table 2. 2003 Top Ten Public Employers

Rank	Name of Employer	Workers
1	El Paso Independent School District	8,663
2	Fort Bliss (civilian employees)	6,620
3	Ysleta Independent School District	6,500
4	City of El Paso	6,264
5	The University of Texas at El Paso	4,871
6	Socorro Independent School District	3,995
7	El Paso Community College	3,728
8	County of El Paso	2,700
9	Thomason General Hospital	1,800
10	Department of Homeland Security	1,786

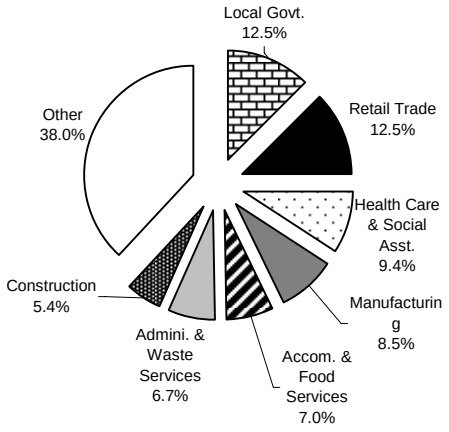
Source: City of El Paso, Dept. of Economic Development

Table 3. 2003 Top Ten Private Employers

Rank	Name of Employer	Workers
1	Sierra Providence Health Network	3,761
2	Wal-Mart	3,706
3	Las Palmas & Del Sol Healthcare System	2,244
4	Echostar Satellite Corp.	2,012
5	MCI Services	1,790
6	West Teleservices Corp.	1,500
7	Sahara, Inc. (natl. center for disabled emp.)	1,369
8	Big 8 Food Stores	1,220
9	Providian Financial	1,010
10	Yazaki North America (EWD & Elcom)	1,000

Source: City of El Paso, Dept. of Economic Development

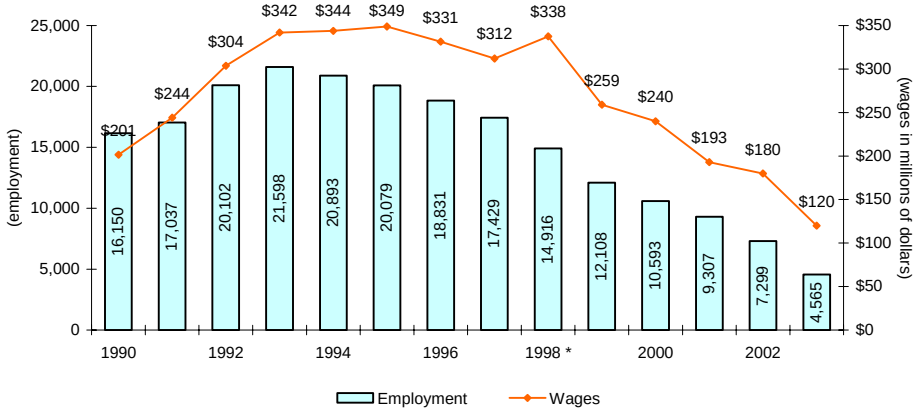
Figure 2. 2003 Nonfarm Employment by Industry Breakdown



Source: BEA

The economy has already witnessed a major structural change away from low-skill, low-wage manufacturing. The same cost advantages that first brought maquiladoras to Cd. Juárez as alternatives to production in Asia impacted the El Paso garment industry. Interior Mexican, Central American, and Asian regions with significant wage differentials displaced El Paso's production of apparel. Coinciding with the passage of NAFTA, the once predominant labor-intensive garment industry started to relocate (Figure 3).[11] El Paso total manufacturing also began a decline coinciding with the passage of NAFTA, but non-apparel manufacturing has provided a cushion by outpacing the job losses absorbed by apparel. Some argue that only specialized apparel manufacturing will survive in El Paso, which may likely the case given the shift that has occurred in other regions of the United States that previously focused on apparel.

Figure 3. El Paso Declining Apparel Manufacturing



* The increase in wages during a time of falling employment may be attributed to the severance packages based on years of employment received y the large number of laid off Levis Strauss workers (some worked for over 2 decades).

Source: TWC, LMI

Even with the wage-driven relocations of garment-related activities, manufacturing continues to play an important role in the economy's employment base. Manufacturing employment was at its highest point in 1994 coinciding with the peak in apparel manufacturing. By 2003, the manufacturing sector employed 28,248 (NAICS based). The current top manufacturers in El Paso include:

Table 4. 2004 El Paso Top Manufacturers

1. Electrolux Co.
2. Toro Co.
3. Delphi Packard Electric
4. Jobe Concrete Products Inc.
5. Joseph Pollack Corp.
6. VF Jeanswear
7. Autotronic Controls Corp.
8. Helen of Troy Ltd.
9. Leviton Manufacturing Co.
10. Phelps Dodge Refining Corp.
11. Stoneridge Electronics Inc.

Source: TWC

According to the Texas Workforce Commission, in the fall of 2004 El Paso had approximately 4,601 establishments that employed 10 or more employees. Of these employers, 0.2 percent employed over 1000 employees, 0.8 percent employed between 500 and 999 employees, 7.9 percent employed between 100 and 499 employees, 11.6 percent employed between 50 and 99 employees, 31.8 percent employed between 20 and 49 employees, and the remaining 47.8 percent employed between 10 and 19 employees. The Commission classifies El Paso's economic base as of average diversity, suggesting that the area has employment across a sufficient number of industrial sectors to withstand some economic decline in key sectors or from a national downturn.

Retail Sales

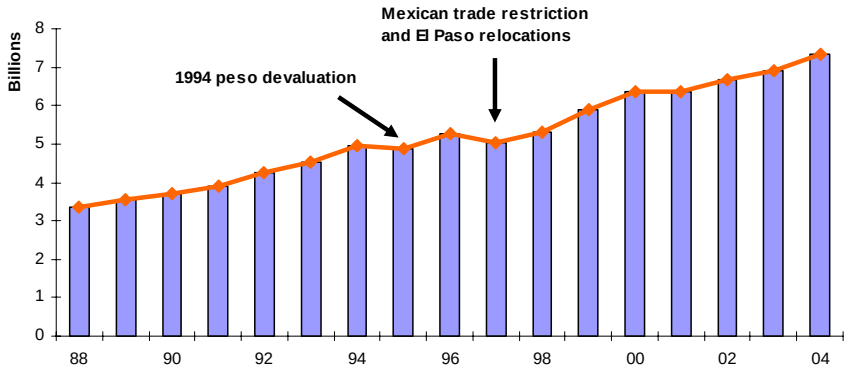
Retail sales are an interesting activity in the El Paso economy, particularly since regional self-service industries such as retail are not covered in the cluster method used in this report. In El Paso, service industries such as retail service not only El Paso but Cd. Juárez as well. While personal income is the primary determinant of the city's retail trade sales, the sector is very much dependent on purchases from Mexican nationals and, to a lesser extent, on sales to southern New Mexico. Local and regional economists estimate that between 15 and 30 percent of El Paso retail sales are derived from Mexican nationals. This applies to many southern border towns whose downtowns are heavily reliant on cross-border purchases.[12] El Paso in part fulfills Cd. Juárez and Chihuahua state residents' demands for goods and services in everything from clothing to financial and health services, to automobiles and home furnishings. During times of peso devaluations or inflationary periods, for example, Cd. Juárez residents are known to buy expensive items in El Paso to avoid high financing costs in their own country.[13]

The retail trade sector has grown substantially as the regional population base (including new military) continues to expand consumption at all levels. Gross retail trade sales activity reached $7.33 billion in 2004, an all time high and an increase of $3.07 billion (72.1 percent) since 1992 (Figure 4).

Not surprisingly, direct anomalies in El Paso retail sales can be attributed to specific Mexican impacts (Figure 4); the first being in 1995, the year after the massive peso devaluation that crippled the Mexican economy, and the second in 1997, the year following México instituting a $50 import limit of U.S. goods for its nationals without declaration. The latter coincided with relocations away from the city by the El Paso Natural Gas headquarters and the 3rd Armored Cavalry at Fort Bliss, both of which also weakened sales. A third impact coincided with the 2001 national recession that affected both Cd. Juárez and El Paso.

Military troops and their families have a substantial impact on retail sales and employment. These military expenditures are proportional, reducing (increasing) retail trade activity as base populations are removed from (brought into) the regional economy.[14] As a net troop recipient from the Base Realignment and Closure (BRAC) process Fort Bliss and the consequent contract and troop spending will have an immediate and direct impact on retail purchases. Retail trade activity in general will continue to rise as it is directly tied to population growth (via birth rates or in-migration) on both sides of the border.

Figure 4. Gross Retail Trade Sales (in billions of dollars)



Source: TCPA

Border Crossings and Trade

El Paso County is located on the important east-west I-10 corridor and links vehicle and freight traffic between Texas, New Mexico, Arizona, and California. It also is one of the three primary north-south ports of entry for trade and population flows between the United States and Mexico.

Of the 25 ports of entry along the U.S.-Mexico border, the port of El Paso in 2004 was the second largest southern port of entry in northbound pedestrian and passenger vehicle crossings, 3rd in cargo truck crossings, 4th in train crossings, and 5th in bus crossings (Table 5; El Paso is actually the 2nd largest pedestrian and vehicle crossing port nationwide including the U.S.-Canada border). El Paso plays a key role to the drayage and logistics component of the just-in-time system between the United States and Mexico. While ranking 3rd in cargo truck crossings, El Paso's international bridges handle the second most of all southern border trade, roughly $44.67 billion of the total $231.92 billion or almost one-fifth of all trade (Figure 6; in 1994 the port recorded $18.17 billion in trade). Almost all trade and truck traffic that pass through El Paso are related to the maquiladora industry or in-bond processing. The importance of international trade along this corridor has resulted in a substantial number of jobs related to trucking, warehousing, customs brokerage, freight forwarding, and other related services.

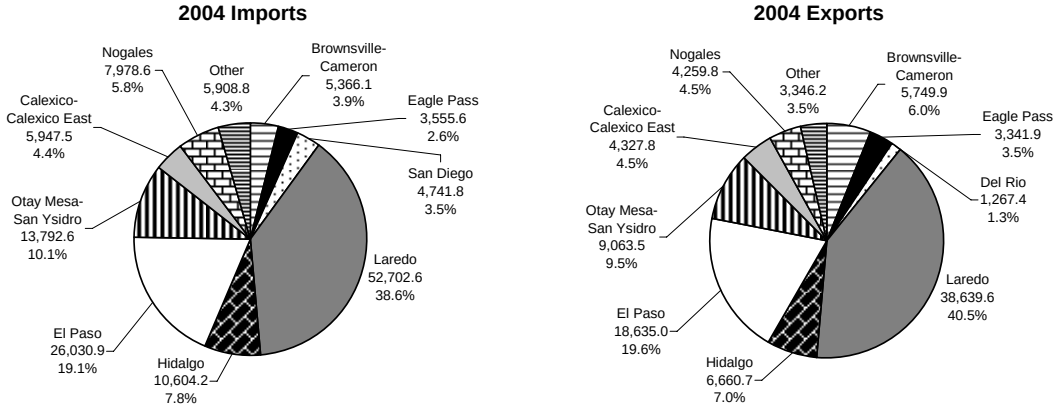
The majority of trade through this region is related to the in-bond or maquiladora industry. Cd. Juárez is Mexico's largest maquiladora employer and has rebounded along with the nation in its activities from the 2001 recession that contracted demand for manufactured goods. Trade and cargo crossings will continue from this industry, particularly since the industry supplies for higher end electronic and automotive producers, which are not as vulnerable to wage arbitrage from Central America and Asia.

Table 5. 2003 U.S. Southern Port Rankings of Incoming Border Crossings

Port	Trucks	Port	Pedestrians	Port	Vehicles
Laredo, TX	1,391,850	San Ysidro, CA	9,457,600	San Ysidro, CA	17,621,030
Otay Mesa/San Ysidro, CA	726,164	El Paso, TX	8,441,671	El Paso, TX	14,817,206
El Paso, TX	719,545	Nogales, AZ	6,131,407	Brownsville, TX	7,211,401
Hidalgo, TX	454,351	Calexico, CA	4,847,096	Hidalgo, TX	7,183,674
Calexico East, CA	312,227	Laredo, TX	4,507,105	Laredo, TX	6,725,119

Source: BTS

Figure 6. 2004 Southern Border Trade



Source: Census, compiled by Texas Center for Border Economic and Enterprise Development

North I-10: Culberson County Economic Overview

In 2004, Culberson's had 2,727 (Table 6; Census), making it the 231st largest county in Texas. Since 2000, the county's population has declined by 248 (-8.3 percent) and by 680 since Census 1990 (-20 percent). The entirety of the decline is due to negative net internal migration of 389, meaning that there were 389 more residents that left the area permanently than new residents that migrated into Culberson. Roughly 31 percent of the population are under the age of 18, and 12 percent are above age 65. Hispanics of all races comprise 72 percent of the residents, and the gender ratio is roughly 50-50. Of the persons 25 years and older (Census 2000) 2.6 percent had an Associates degree, 10.3 percent had a Bachelors degree, and 3.6 percent had a graduate or professional degree (compared to 6.3, 15.5 and 8.9 percent at the national level). By 2040 the Office of the State Demographer forecasts Culberson's population to grow above 3,000, but the projections do not take into account the negative net internal migration taking place in the county. Consequently, current migration patterns make future population estimates for Culberson difficult to assess.

Culberson covers 3,813 square miles, giving it a population density of 0.72 residents per square mile, down from 0.78 residents per square mile in 2000. The county seat and major city in Culberson is Van Horn, which had a 2004 population of 2,240 (82 percent of the county population). Van Horn's population has dropped substantially, going from 2,930 in the 1990 Census to 2,435 in 2000.

Table 6. Economic Overview

Population (2004)	2,727	Labor Force (2004)	1,550
Growth Rate since 1990	-20.0%	Labor Force Participation Rate	77.5%
25 & Over No High School	43.9%	Unemployment Rate	5.7%
25 & Over High School	27.6%	Full- and Part-time Employment (2003)	1,480
25 & Over Some College or Degree	28.5%	Growth Rate since 1990	-15.1%
Per Capita Personal Income (2003)	$15,522	Wage & Salary Employment	1,050
Percent of U.S. Per Capita	49.3%	Avg. Wage & Salary per Job	$21,394
Per Capita Transfer Payments	$4,615	Proprietors Employment	430
Poverty Level All Ages (2003)	23.1%	Farm Proprietors Jobs	120
Poverty Level 0-17 Ages	33.9%	Nonfarm Proprietors Jobs	310
Median Household Income (2003)	$23,850	Farm Employment	176
Households (2000)	1,052	Nonfarm Employment	1,304
Avg. Household Size	2.8	Private Jobs	934
Median House Value	$32,500	Government Jobs	370
Home Ownership Rate	70.8%	Gross Retail Trade Sales (2004)	$81.72 million

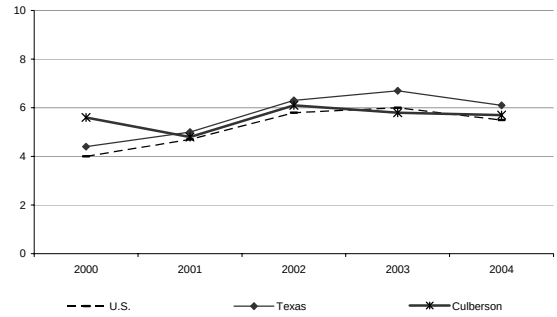
Sources: Census, BLS, BEA, TCPA, and author's calculations

Per capita personal income in Culberson in 2003 was $15,522 (Table 6; BEA). This was less than half (49.3 percent) the national per capita income level of $31,472. Ten years earlier in 1993, per capita income in the county was $13,515 (in 2003 real dollars – adjusted for inflation), 49.7 percent the national level. In ten years the gap in per capita income and consequent economic well-being of resident's has shown no improvement relative the nation. Per capita transfer payments totaled $4,615 in 2003, meaning that 29.7 percent (almost 1 in 3 dollars) of the county's per capita income originates from transfer payments (compared to the U.S.' 14.6 percent and Texas' 12.8 percent). Poverty is relatively high in

Culberson as almost 1 in 4 (23.1 percent) residents and over 1 in 3 (33.9 percent) of those under the age of 18 live below designated poverty thresholds (Table 6; Census).

In 2004, the unemployment rate in Culberson was 5.7 percent (Table 6; BLS). The unemployment rate has closely mirrored the national rate since 2001 and is currently below the state rate (Figure 1). The 2004 labor force participation rate in Culberson was 77.5 percent (Table 6), compared to the national and Texas participation rates of 64.5 and 65.3, respectively. The high participation rates may be closely tied to, among other factors, the out-migration of residents from Culberson – for example, the rate is a calculation of the 16 and over population in the labor force (numerator) divided by the 16 and over population (denominator), so a discouraged worker not in the labor force (does not affect the numerator) who out-migrates from Culberson (decreases the denominator) leads to an increase in the calculated labor force participation rate.

Figure 7. Unemployment Rates (in percents)



Source: BLS

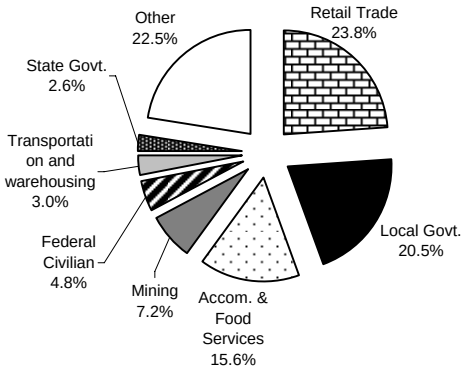
Full- and part-time employment in Culberson fell to 1,480 in 2003 (Table 6). Over the past three decades, the county has witnessed stagnant or negative growth in employment, reaching a low in 2000 of 1,391 full- and part-time jobs. Since 1990 Culberson has contracted its job base by 15.1 percent, this while the state and nation witnessed high job growth throughout the 1990s. Of the county's total jobs, 11.9 percent, more than 1 in 8 jobs, is farm related (compared to the U.S.' 1.8 farm percent share and Texas' 2.3 percent). Similarly, the county has a high share of government jobs with 25 percent of all jobs accounted for by the government sector (compared to the U.S.' 14.2 percent and Texas' 14.6 percent of jobs in the government sector). Local government drives the latter sector. Top employers include:

1. Texas Department of Transportation
2. Van Horn ISD
3. Culberson County Hospital District

Source: URGWDB

The largest nonfarm, private employment sectors in Culberson are 1) retail trade, 2) accommodation and food services, 3) mining, and 4) transportation and warehousing (Figure 8). From 2001 to 2003, most of the disclosed jobs gains have come from retail trade (31) and mining (11) while accommodation and food services contracted by 46 jobs.

Figure 8. 2003 Nonfarm Employment by Industry Breakdown



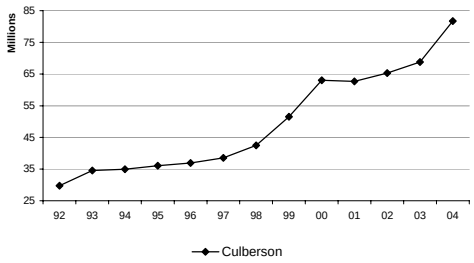
Source: BEA. Only includes disclosed data.

According to the Texas Workforce Commission, in the fall of 2004 Culberson had roughly 39 establishments that employed 10 or more employees. Of these employers, 2.6 percent employed between 50 and 99 employees, 28.2 percent employed between 20 and 49 employees, and 69.2 percent employed between 10 and 19 employees. The Commission reports Culberson to have an economic base of below average diversity with employment distributed and developed across few industries. With few job development strategies available, the economy is more susceptible to adverse economic activity.

Manufacturing activities are limited in Culberson. The top manufacturers are related to mining – Milwhite Inc. is 1 of 7 companies that mine and process talc in the United States, and Texas Architectural Aggregates is a crushing and milling facility of architectural marble.

Culberson gross retail trade sales reached $81.7 million in 2004, an increase of 175 percent or $52 million over 1992 (Figure 9).

Figure 9. Gross Retail Trade Sales (millions of dollars)



Source: TCPA

North I-10 Corridor: Hudspeth County Economic Overview

In 2004 there were an estimated 3,300 residents in Hudspeth County (Table 1; Census), placing it 222nd in Texas county population rankings, ahead of only 32 other counties. Since 2000, the county's population decreased by 44 residents (-1.3 percent). The decrease was a result of negative net internal migration of 337, meaning that there were 337 more former residents that left the area permanently than new residents that migrated into Hudspeth. Roughly 32.4 percent of the population are under the age of 18, and 10.1 percent above age 65. More than 3 out of every 4 residents (78.5) are Hispanics of all races and the gender ratio is roughly 50-50. Of the persons 25 years and older (Census 2000) 2.7 percent had an Associates degree, 6.4 percent had a Bachelors degree, and 3.3 percent had a graduate or professional degree (compared to 6.3, 15.5 and 8.9 percent at the national level). By 2040 Hudspeth's population is projected to grow to 3,847 with Hispanics of all races increasing their share of the total population to 83 percent (Office of the State Demographer recommended scenario). However, these projections do not take into account the negative net internal migration taking place in the county, so more conservative growth patterns are likely.

County covers 4,572 square miles and has a population density of 0.72 residents per square mile. The county seat in Hudspeth is Sierra Blanca, and the major city is Dell City, which have populations of 533 and 409, respectively (28 combined percent of the county population).

Table 7. Economic Overview

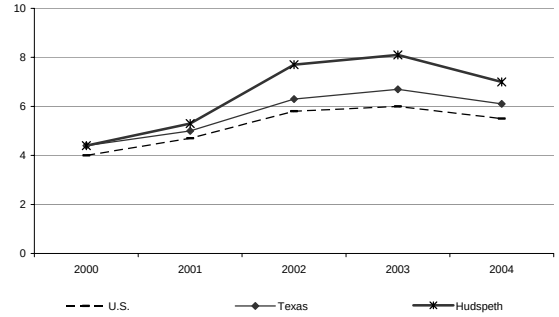
Population (2004)	3,300	Labor Force (2004)	1,352
Growth Rate since 1990	13.2%	Labor Force Participation Rate	57.6%
25 & Over No High School	53.9%	Unemployment Rate	7.0%
25 & Over High School	20.6%	Full- and Part-time Employment (2003)	1,399
25 & Over Some College or Degree	25.5%	Growth Rate since 1990	18.9%
Per Capita Personal Income (2003)	$16,482	Wage & Salary Employment	946
Percent of U.S. Per Capita	52.4%	Avg. Wage & Salary per Job	$26,414
Per Capita Transfer Payments	$3,889	Proprietors Employment	453
Poverty Level All Ages (2003)	28.6%	Farm Proprietors Jobs	179
Poverty Level 0-17 Ages	40.4%	Nonfarm Proprietors Jobs	274
Median Household Income (2003)	$21,855	Farm Employment	357
Households (2000)	1,092	Nonfarm Employment	1,042
Avg. Household Size	3.0	Private Jobs	612
Median House Value	$30,500	Government Jobs	430
Home Ownership Rate	81.0%	Gross Retail Trade Sales (2004)	$9.16 million

Sources: Census, BLS, BEA, TCPA, and author's calculations

Per capita personal income in Hudspeth in 2003 was $16,482 (Table 7; BEA), 52.4 percent of the U.S. level ($31,472). While the per capita purchasing power for residents is very low, the county made some improvement over 1990 when the county's per capita income of $12,891 (in 2003 real dollars) was 47.4 percent the national level. Per capita transfer payments totaled $3,889 in 2003, meaning that 23.6 percent of the county's per capita income originated from transfer payments (compared to the U.S.' 14.6 percent and Texas' 12.8 percent). Poverty afflicts 28.6 percent of Hudspeth's residents, and 2 out of every 5 (40.4 percent) under the age of 18 (Table 7; Census).

In 2004, the unemployment rate in Hudspeth was 7 percent (Table 7; BLS), compared to 5.5 percent for the nation and 6.1 percent for Texas. The jobless rate managed to decline in 2004 after a continuous rise beginning in 2000. The labor force participation rate for Hudspeth is estimated at 57.6 percent, versus 64.5 and 65.3 percent for the nation and state, respectively (Table 7).

Figure 10. Unemployment Rates (in percents)



Source: BLS

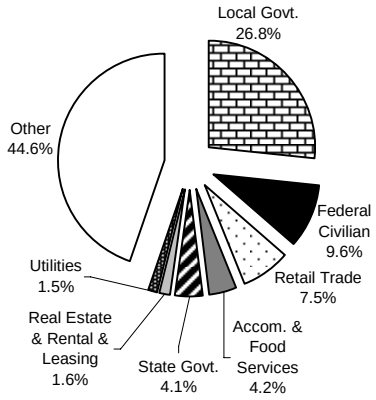
Full- and part-time employment in Hudspeth was 1,399 in 2003 (Table 7; BEA) after reaching a high of 1,422 in 2001. One-quarter (25.5 percent) of the county's job base is in farm employment while more than 30.7 percent is in government. The latter is driven by local government and a substantial federal government base. Together the farm and government sectors account for 56.2 percent of all jobs in Hudspeth. The top employers include:

1. U.S. Border Patrol, Office of Homeland Security
2. Fort Hancock ISD
3. Hudspeth County

Source: URGWDB

The largest nonfarm, private employment sectors in Hudspeth are 1) retail trade, 2) accommodation and food services, and 3) real estate and retail leasing (Figure 11). With less than half of all employment accounted for by the private sector, there is little dynamic growth in the economy. From 2001 to 2003 accommodation and food services added 15 jobs while retail trade contracted by 22.

Figure 11. 2003 Nonfarm Employment by Industry Breakdown



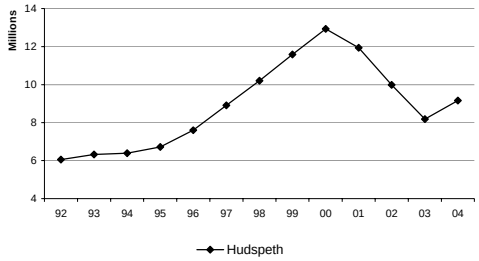
Source: BEA. Only includes disclosed data.

According to the Texas Workforce Commission, in the fall of 2004 Hudspeth had approximately 21 establishments that employed 10 or more employees. Of these employers, 4.8 percent employed between 50 and 99 employees, 57.1 percent employed between 20 and 49 employees, and 38.1 percent employed between 10 and 19 employees. While the Commission reports Hudspeth as having an

economic base of above average diversity, the high dependency on government and farm employment are indicative of an economy that, while distributed across various industries, fails to create sufficient employment opportunities for its residents.

There are almost no manufacturing operations in Hudspeth. In 2003 there were 10 jobs attributed to production, less than 1 percent of total employment. Gross retail trade sales were $9.2 million in 2004, up 51 percent since 1992 but down from the high of $12.0 million in 2000 (Figure 12).

Figure 12. Gross Retail Trade Sales (millions of dollars)



Source: TCPA

South I-10 Corridor: Jeff Davis County Economic Overview

In 2004, the population of Jeff Davis reached 2,253 (Table 8; Census), making it the smallest of the six Upper Rio Grande counties and placing it 234th in population rankings in Texas. After 2000 the county added 46 residents (2.1 percent growth) above the 307 resident change from 1990 (15.8 percent growth). The increase from 2000 resulted from both international migration (59 net international residents) and internal migration (25 net internal residents). Jeff Davis is one of the few counties that experienced negative natural increase as 100 deaths were recorded versus only 64 births. Roughly 23 percent of the population are under the age of 18 while 17 percent are age 65 and above. Hispanics of all races comprise 35 percent of the population, the lowest Hispanic share within the Upper Rio Grande region. The gender ratio is slightly more males than females at 50.8 percent males and 49.2 percent females. Of the persons 25 years and older (Census 2000) 4.7 percent had an Associates degree, 21.5 percent had a Bachelors degree, and 13.6 percent had a graduate or professional degree (compared to 6.3, 15.5 and 8.9 percent at the national level). By 2040 Jeff Davis' population is projected to grow to 1,888 with Hispanics of all races increasing their share of the total population to 42 percent (Office of the State Demographer recommended scenario).

Jeff Davis covers 2,259 square miles and has a population density of almost 1 resident per square mile. The county seat for Jeff Davis is Fort Davis, and the major city is Valentine, which have populations of 1,050 and 189, respectively (half the county population combined).

Table 8. Economic Overview

Population (2004)	2,253	Labor Force (2004)	1,373
Growth Rate since 1990	15.8%	Labor Force Participation Rate	74.1%
25 & Over No High School	25.3%	Unemployment Rate	3.6%
25 & Over High School	19.0%	Full- and Part-time Employment (2003)	1,371
25 & Over Some College or Degree	55.7%	Growth Rate since 1990	34.0%
Per Capita Personal Income (2003)	$20,154	Wage & Salary Employment	916
Percent of U.S. Per Capita	64.0%	Avg. Wage & Salary per Job	$25,881
Per Capita Transfer Payments	$3,966	Proprietors Employment	455
Poverty Level All Ages (2003)	14.6%	Farm Proprietors Jobs	101
Poverty Level 0-17 Ages	25.3%	Nonfarm Proprietors Jobs	354
Median Household Income (2003)	$32,248	Farm Employment	182
Households (2000)	896	Nonfarm Employment	1,189
Avg. Household Size	2.4	Private Jobs	867
Median House Value	$59,800	Government Jobs	322
Home Ownership Rate	70.1%	Gross Retail Trade Sales (2004)	$8.45 million

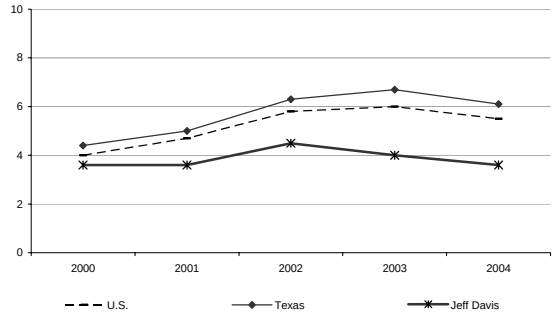
Sources: Census, BLS, BEA, TCPA, and author's calculations

Per capita personal income in Jeff Davis in 2003 was $20,154 (Table 8; BEA), 64 percent the national level. Ten years earlier in 1993, per capita income in the county was $18,082, almost 67 percent the national level. Per capita transfer payments totaled $3,966 in 2003 (in 2003 real dollars), meaning that 19.7 percent (almost 1 in 5 dollars) of the county's per capita income originated from transfer payments (compared to the U.S.' 14.6 percent and Texas' 12.8 percent). Even with the low levels of per capita income and high levels of transfer payments, Jeff Davis' poverty levels are comparable to those of the state (Table 8; Census). Fourteen percent (14.6) of county residents live in poverty (versus 16.2 percent

in Texas and 12.5 percent across the country). Children (17 and below) make up 25.3 percent of the total (versus 22.8 in Texas and 17.6 percent across the country).

In 2004, the unemployment rate in Jeff Davis was 3.6 percent, 1.9 and 2.5 percentage points below the nation and Texas, respectively. The county's jobless rate is the lowest within the Upper Rio Grande region. The 2004 labor force participation rate in Jeff Davis was 74.1 percent (Table 8), well above the national and state participation rates of 64.5 and 65.3 percent, respectively.

Figure 13. Unemployment Rates (in percents)



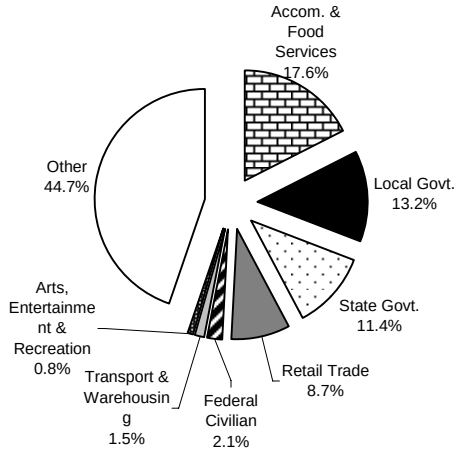
Source: BLS

Full- and part-time employment in Jeff Davis totaled 1,373 in 2003 (Table 8). Similar to the URG region and the border in general, relative to the nation Jeff Davis has a larger share of its employment in farm and government. In particular, the county has a large share of its employment base in the state government sector when compared to the nation. Top employers include:

1. Village Farms LLC
2. The University of Texas McDonald Observatory
3. Jeff Davis County

The largest nonfarm, private employment sectors in Jeff Davis (excluding manufacturing) are 1) accommodation and food services, 2) retail trade, and 6) transportation and warehousing (Figure 14). From 2001 to 2003 accommodation and food services added 31 jobs, retail trade added 6 jobs and transport and warehousing added no jobs.

Figure 14. 2003 Nonfarm Employment by Industry Breakdown



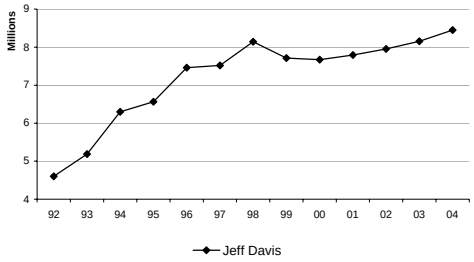
Source: BEA. Only includes disclosed data.

According to the Texas Workforce Commission, in the fall of 2004 Jeff Davis had approximately 28 establishments that employed 10 or more employees. Of these employers, 10.7 percent employed between 100 and 499 employees, 10.7 percent employed between 50 and 99 employees, 32.1 percent

employed between 20 and 49 employees, and 46.4 percent employed between 10 and 19 employees. The Commission designates Jeff Davis with an economic base which is of below average diversity, signifying that the area has large concentrations of employment in only a few industrial sectors, making it susceptible to specific economic downturns.

There are two top manufacturers in Jeff Davis – Blue Mountain Vineyard, an award winning producer of wines in the region, and High Lonesome Optics. Gross retail trade sales were $8.45 million in 2004, up 83.7 percent or $3.1 million over 1992 (Figure 15).

Figure 15. Gross Retail Trade Sales (millions of dollars)



Source: TCPA

South I-10 Corridor: Presidio County Economic Overview

In 2004, Presidio's population was 7,639 (Table 9; Census), placing it 183rd in population rankings in Texas. After 2000 the county's population grew by 335 persons (6.5 percent). The growth from 2000 is attributed to natural increase (530 more births than deaths) and net international migration of 446 (the county experienced a negative net internal migration of 636 during these four years). Roughly 32 percent of the population are under the age of 18 and 14 percent are age 65 and above. Hispanics of all races comprise 85 percent of the residents, making it the county in the Upper Rio Grande region with the highest concentration of Hispanics. Presidio also has the greatest difference between gender groups with 52.2 percent being female and 47.8 percent male. Of the persons 25 years and older, 3.1 percent had an Associates degree, 6.8 percent had a Bachelors degree, and 4.9 percent had a graduate or professional degree (compared to 6.3, 15.5 and 8.9 percent at the national level). By 2040 Presidio's population is projected to grow to 13,055 with Hispanics of all races increasing their share of the total population to almost 94 percent (Office of the State Demographer recommended scenario). However, these projections do not take into account the negative net internal migration taking place in the county, so more conservative growth patterns are likely.

The county covers 3,856 square miles, giving it a population density of 1.99 residents per square mile. The county seat in Presidio is Marfa, and the major city is Presidio with 2004. These had population levels of 2,005 and 4,652, respectively (87 combined percent of the county population).

Table 9. Economic Overview

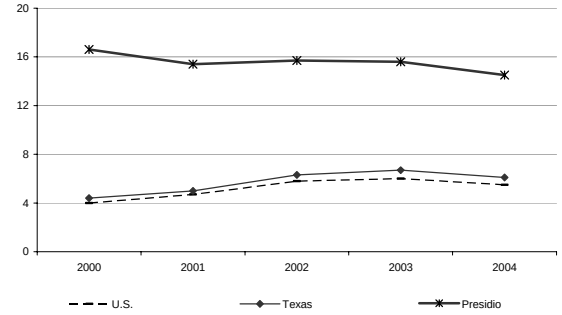
Population (2004)	7,639	Labor Force (2004)	3,535
Growth Rate since 1990	15.1%	Labor Force Participation Rate	64.2%
25 & Over No High School	55.3%	Unemployment Rate	14.5%
25 & Over High School	19.9%	Full- and Part-time Employment (2003)	2,716
25 & Over Some College or Degree	24.8%	Growth Rate since 1990	31.4%
Per Capita Personal Income (2003)	$14,465	Wage & Salary Employment	1,913
Percent of U.S. Per Capita	46.0%	Avg. Wage & Salary per Job	$24,688
Per Capita Transfer Payments	$4,634	Proprietors Employment	803
Poverty Level All Ages (2003)	27.7%	Farm Proprietors Jobs	179
Poverty Level 0-17 Ages	40.1%	Nonfarm Proprietors Jobs	624
Median Household Income (2003)	$24,254	Farm Employment	318
Households (2000)	2,530	Nonfarm Employment	2,398
Avg. Household Size	2.9	Private Jobs	1,594
Median House Value	$35,500	Government Jobs	804
Home Ownership Rate	70.3%	Gross Retail Trade Sales (2004)	$38.52 million

Sources: Census, BLS, BEA, TCPA, and author's calculations

Per capita personal income in Presidio in 2003 was $4,465 (Table 9; BEA). This was 46 percent the national per capita level of $31,472, the lowest of all Upper Rio Grande counties. In ten years the gap in per capita income widened – in 1993 the per capita income in the county was $13,386 (in 2003 real dollars), 49.2 percent of the national level. Per capita transfer payments totaled $4,634 in 2003, meaning that 32 percent (almost one-third) of the county's per capita income originated from transfer payments (compared to the U.S.' 14.6 percent and Texas' 12.8 percent). Correlated to the high share of government transfers is poverty, which afflicts 27.7 percent of the county's population, with the poverty level greater among those 17 years and younger (Table 9; Census).

In 2004, the unemployment rate in Presidio was 14.5 percent (Table 9; BLS), highest among all Upper Rio Grande counties. The 2003 labor force participation rate in Presidio was 64.2 (Table 9), comparable to the national and state rates of 64.5 and 65.3 percent.

Figure 16. Unemployment Rates (in percents)



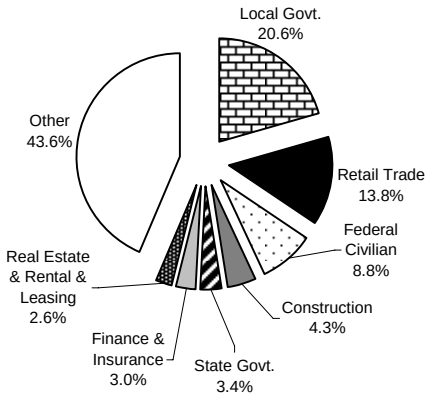
Source: BLS

Full- and part-time employment in Presidio reached 2,716 in 2003 (Table 9; BEA), and the job base grew 31.4 percent from 1990, adding 649 jobs. Relative to the nation and Texas the economy has a larger share of government and farm employment. Of the county's total jobs, 29.6 percent are in the government sector (compared to the U.S.' 14.4 government percent share and Texas' 14.9 percent). Local government accounts for 18.2 percent, and the federal government accounts for another 7.7 percent of the total jobs. The farm share of total jobs in Presidio is 11.7 percent, compared to the national and state shares of 1.8 and 2.3 percent, respectively. The top employers include:

1. Village Farms LLC
2. U.S. Border Patrol, Office of Homeland Security
3. Presidio ISD
4. Presidio County

The largest nonfarm, private employment sectors in Presidio are 1) retail trade, 2) construction, and 3) finance and insurance (Figure 17). From 2001 to 2003, most of the disclosed jobs gains were in construction while retail trade witnessed a jobs loss.

Figure 17. 2003 Nonfarm Employment by Industry Breakdown



Source: BEA. Only includes disclosed data.

According to the Texas Workforce Commission, in the fall of 2004 Presidio had approximately 40 establishments that employed 10 or more employees. Of these employers, 2.5 percent employed between 100 and 499 employees, 12.5 percent employed between 50 and 99 employees, 40 percent

employed between 20 and 49 employees and the remaining 45 percent employed between 10 and 19 employees. While the Commission reports Hudspeth as having an economic base of average diversity, the high dependency on government and farm employment clearly indicate a private sector, while spread across various industries that, fails to create sufficient employment opportunities for its residents.

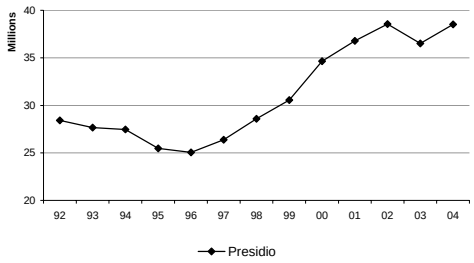
Manufacturing activities are relatively small in Presidio, employing only 24 persons in 2003. The 24 jobs are divided among Presidio's top manufacturers:

1. ABC Pump Inc.
2. Baeza Feeds
3. Judd Foundation
4. Rimfire Forge
5. Santa Fe Cabinet Shop

Source: TWC

Presidio gross retail trade sales totaled $38.5 million in 2004, an increase of $10.1 million or 36 percent over 1992 (Figure 18).

Figure 18. Gross Retail Trade Sales (millions of dollars)



Source: TCPA

South I-10 Corridor: Brewster County Demographic and Economic Overview

In 2004, Brewster's population was 9,226 (Table 1; Census), placing the county 171st in Texas. Since Census 2000, the county has grown by 4.1 percent and added 360 residents – a 180 person increase resulting from natural increase (births over deaths) and 186 from net migration (151 from international migration and 35 from internal migration). Roughly 22 percent of the population are under the age of 18, and 14 percent is older than 65 years. Hispanics of all races comprise 45 percent of the residents and the gender ratio is slightly more females than males, 50.3 versus 49.7 percent. Of the persons 25 years and older (Census 2000), 4.1 percent had an Associates degree, 17.4 percent had a Bachelors degree, and 10.3 percent had a graduate or professional degree (compared to 6.3, 15.5 and 8.9 percent at the national level). By 2040 Brewster's population is projected to grow to 10,261 with Hispanics of all races increasing their share of the total population to 61 percent (Office of the State Demographer recommended scenario).

Brewster is the largest county in the state measure in square miles (6,193) and has a population density of 1.49 residents per square mile. The college city of Alpine is both the county seat and major city in Brewster with a 2004 population of 6,079 (66 percent of the county population).

Table 10. Economic Overview

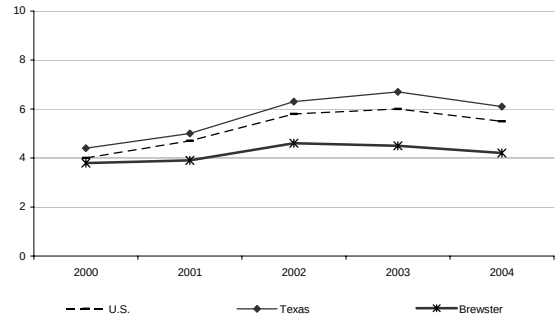
Population (2004)	9,226	Labor Force (2004)	5,465
Growth Rate since 1990	6.3%	Labor Force Participation Rate	73.3%
25 & Over No High School	21.4%	Unemployment Rate	4.2%
25 & Over High School	21.1%	Full- and Part-time Employment (2003)	6,073
25 & Over Some College or Degree	57.5%	Growth Rate since 1990	44.2%
Per Capita Personal Income (2003)	$23,440	Wage & Salary Employment	4,765
Percent of U.S. Per Capita	74.5%	Avg. Wage & Salary per Job	$24,969
Per Capita Transfer Payments	$4,195	Proprietors Employment	1,308
Poverty Level All Ages (2003)	17.5%	Farm Proprietors Jobs	155
Poverty Level 0-17 Ages	25.1%	Nonfarm Proprietors Jobs	1,153
Median Household Income (2003)	$29,201	Farm Employment	225
Households (2000)	3,669	Nonfarm Employment	5,848
Avg. Household Size	2.3	Private Jobs	4,418
Median House Value	$67,000	Government Jobs	1,430
Home Ownership Rate	59.5%	Gross Retail Trade Sales (2004)	$81.65 million

Sources: Census, BLS, BEA, TCPA, and author's calculations

Per capita personal income in Brewster in 2003 was $23,440 (Table 10; BEA). This was 74.5 percent the national per capita level of $31,472. Ten years earlier in 1993, the per capita income in the county was $18,532 (in 2003 real dollars), 68.2 percent the national level. Per capita transfer payments totaled $4,195 in 2003, meaning that 17.9 percent of the county's per capita income originates from transfer payments (compared to the U.S.' 14.6 percent and Texas' 12.8 percent). Correlated to the high share of government transfers is poverty, which afflicts 17.5 percent of the county's population, with the poverty level greater among the youth 17 years and younger (Table 10; Census).
In 2004, the unemployment rate in Brewster was 4.2 percent (Table 10; BLS), below the national and state annual averages (Figure 19). Like the national and state economies, Brewster had an unemployment rate rise as a result of the 2001 recession. The 2004 estimated labor force participation

rate in Brewster was 73.3 percent (Table 10), compared to the national and Texas participation rates of 64.5 and 65.3 percent, respectively.

Figure 19. Unemployment Rates (in percents)



Source: BLS

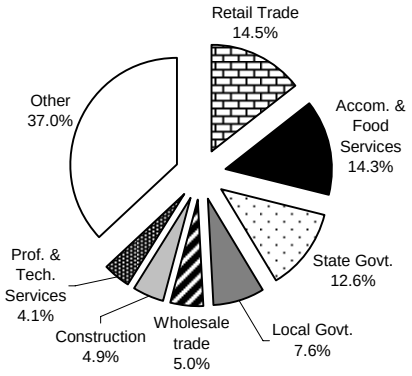
Full- and part-time employment in Brewster totaled 6,073 in 2003 (Table 10; BEA). Relative to the nation and Texas, the economy has a larger share of farm and government employment. However, the county posted negative farm earnings as a result of losses by farm proprietors. The government sector is driven by the large share of state and federal civilian government jobs. Top employers include:

4. Sul Ross State University
5. Alpine ISD
6. Brewster County
7. Big Bend Hospital District

Source: URGWDB

The largest nonfarm, private employment sectors in Brewster are 1) retail trade, 2) accommodation and food services, 3) wholesale trade, and 4) construction (Figure 20). From 2001 to 2003, the sector with the greatest jobs growth was retail trade, followed by wholesale trade and accommodation and food services (increases of 97, 26 and 23, respectively). Most job losses occurred in the information and construction sectors, losing 26 and 22 jobs, respectively. Big Bend National Park drives the high share of tourist accommodation and related service jobs and occupations.

Figure 20. 2003 Nonfarm Employment by Industry Breakdown



Source: BEA. Only includes disclosed data.

According to the Texas Workforce Commission, in the fall of 2004 Brewster had approximately 101 establishments that employed 10 or more employees. Of these employers, 7.9 percent employed between 100 and 499 employees, 8.9 percent employed between 50 and 99 employees, 30.7 percent employed between 20 and 49 employees. The remaining 52.5 percent employed between 10 and 19 employees. Consequently, Brewster has an economic base which is of below average diversity, meaning

that the area has significant concentrations of employment in only a few industrial sectors, making it more susceptible to widespread economic decline should a key sector suffer a significant loss.

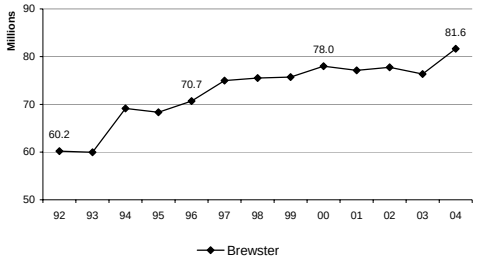
Manufacturing activities are relatively small in Brewster when compared to both the nation and state. Since 1982 manufacturing employment was at its lowest point in 1994 when it dropped to 38 (SIC based). By 2003 the manufacturing sector employed 101 persons (NAICS based), accounting for only 1.7 percent of nonfarm (private plus government) employment. The top 10 manufacturers for Brewster are:

1. Coca-Cola Bottling Co.
2. Highland Concrete Co.
3. Nurses Unlimited Inc.
4. Alpine Printing Co.
5. Badlands Bakery
6. Pimmco
7. Production Minerals Inc.
8. Covington Enterprises
9. JR Carri Co.
10. Nico's Printing Express

Source: TWC

Brewster retail sales are positively affected by the tourism industry. Gross retail trade sales reached $81.6 million in 2004, an increase of $21.4 million or 36 percent over 1992 (Figure 21).

Figure 21. Gross Retail Trade Sales (millions of dollars)



Source: TCPA

[1] Brenner, C.T. (2003). "Education and the Status of Human Capital Development in Texas." In *Dígame! Policy and Politics on the Texas Border.* C.T. Brenner, I. Coronado and D.L. Soden, Eds. Dubuque, IA: Kendall Hunt Publishing: 207-234.
[2] Porter, Michael E. 2003. "The economic performance of regions," *Regional Studies,* 37, 549-78.
[3] Feser, E. Benchmark value chain industry clusters for applied regional research. Latest version: October 2005. p 5.
[4] Feser, E. 2005. p 5.
[5] ibid.,p. 6.
[6] Exclusively local services are excluded from the 437 by 437 matrix and are not covered as productive industries by the Feser clusters.
[7] For more information, see G.H. Hanson, 2001. "U.S.-México Integration and Regional Economies: Evidence from Border City Pairs," Journal of Urban Economics, v50, pp. 250-287.
[8] Interestingly, while proximity to México has served to depress wages on the U.S. side of the border, the situation in Mexican border cities is the reverse. They are typically seen as areas of low unemployment, greater opportunity, access to education or training, and better wages relative to the rest of the nation. For more information on El Paso attainment, see C. Brenner, "Educational Trends and Income in El Paso: A Longitudinal Perspective," Institute for Policy and Economic Development, Technical Report 2001-07, August, 2001.
[9] Source: Texas Comptroller of Public Accounts, July 2002, "Texas Regional Outlook: The Upper Río Grande Region," pp. 1-28.
[10] Fort Bliss is home of the U.S. Army Air Defense Command responsible for air defense artillery training of U.S. soldiers and various allied nation soldiers (the latter brings thousands of soldiers from around the world into El Paso, pumping millions of dollars into the local economy). It is comprised of approximately 1.12 million acres of land in Texas and New México, making it the second largest installation in the Army (White Sands Missile Range is the largest and is adjacent to Fort Bliss). Fort Bliss also houses Biggs Army Airfield, which has more miles of runway than any other Army airfield in the world and ranks as the nation's third largest runway, including commercial airports. It provides the largest contiguous tract of virtually unrestricted airspace in the Continental United States (1,500 square miles) and can handle any aircraft that flies, including the specially equipped Boeing 747 that carries the space shuttle. http://www.globalsecurity.org/military/facility/fort-bliss.htm.
[11] At its peak in 1993, apparel accounted for approximately 47 percent of manufacturing. By 2003, it accounted for only 17 percent of manufacturing.
[12] Survey instruments performed for the Sonora, Mexico-Arizona, U.S. region have been conducted since the late 1970s to assess these activities (Alberta H. Charney and Vera K. Pavlokovich, 2002. "The Economic Impacts of Mexican Visitors to Arizona: 2001," Economic and Business Research Program, University of Arizona.). While restricted to being performed only once per decade, the Arizona exit interviews have provided insight as to what percentage Mexican visitor spending accounts for as a percent of taxable sales by county. Results showed extreme variation, from as little as 3.8 percent to as much as 47.3 percent, dependent on the port and border county under analysis. Other survey-style studies along the San Diego region have also tried to measure the extent of retail sales purchases by Mexican nationals (San Diego Dialogue, April 1994. "Who Crosses the Border: A View of the San Diego/Tijuana Metropolitan Region."). Similarly, empirical models have tried to assess the effect and extent of retail sales activity captured by Mexican nationals along Texas' border. Again, results differ by region and by model parameters and initial conditions. Under one Federal Reserve study, exported retail sales in Texas ranged from 6 percent to 22 percent of all retail sales along the border counties (K. R. Phillips and C. Manzanares, 2001. "Transportation Infrastructure and the Border Economy," The Border Economy, Federal Reserve Bank of Dallas.). Another impact study on the El Paso region quantified the percent of total retail sales to Mexican nationals at 33 percent (Sergio Peña Medina, 2003. "Comercio Transfronterizo y su Impacto en la Región El Paso-Juárez: Una Propuesta de Financiamiento de la Planeación Binacional," Frontera Norte, v14, #29.).
[13] For more information, see J. Cañas, 2002. "A Decade of Change: El Paso's Economic Transition of the 1990s," Business Frontier, Federal Reserve Bank of Dallas, El Paso Branch, (1).
[14] For more information, see D. Schauer and D.L. Soden, "The Economic Impact of Fort Bliss Texas," Institute for Policy and Economic Development, Technical Report 2002-08 July 2002.