



March 2016

FISCAL NOTES

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ANOTHER FINANCE OPTION FOR SCHOOLS

Forney, just east of Dallas in Kaufman County, is one of Texas' 10 fastest-growing cities. Once a small town known primarily for its antique shops, Forney's population has more than tripled in the past 15 years.

This growth has brought new opportunities for Forney's citizens. It also brings challenges, however, as the city struggles to keep up with the rapidly growing demand for infrastructure, facilities and services.

Consider, for example, the Forney Independent School District, which has seen its enrollment rise by 330 percent in the past 15 years. In 1999, with an enrollment just above 2,000, Forney ISD comprised four campuses. By 2014, the district had grown to include 14 campuses and more than 8,600 students.

For Forney ISD — and many other Texas school districts experiencing similarly rapid enrollment growth — coping with the influx of new students is difficult at best.

Traditionally, school districts have raised money for campus construction projects by issuing municipal bonds, repaying investors' principal and interest with property tax revenues. But in Texas, school districts face a limit on the amount of debt they can incur. Since 1991, a state law commonly called "the 50-cent test" has required districts to show they can repay their bonds with a tax rate of no more than 50 cents per \$100 of assessed property value at the time of issuance.

BONDS 101

Bonds are a way for companies and governments to borrow money. A bond is an IOU — an investor loans the money needed for a specific length of time, at the end of which the bond issuer (i.e., the borrower) pays back the loan with interest. Issuers of conventional bonds pay periodic interest to the bondholders during the term of the bond.

Districts already at or near the 50-cent limit, such as Forney ISD, have sought other financing options. To build and renovate the facilities they need to meet the demands of burgeoning enrollment, some districts have turned to an alternative form of debt called a capital appreciation bond (CAB).

HOW CABS WORK

A CAB is a debt instrument governments can use to fund buildings, parks, roads and other capital projects. For conventional bonds, interest payments are made in installments, generally once a year for principal and twice a year for interest. CABs, by contrast, require no interest payments until maturity — the date on which the debt becomes due. At that time, the full amount of the principal and *all* interest accrued must be repaid to the investor as a single lump sum.

Thus interest on CAB debt compounds throughout the bond period, which may be years or even decades.

A school district issuing CABs, then, does not have to increase its tax rates to cover interest and principal payments until the bond matures. This feature is why so many Texas school districts have turned to CABs — it helps them borrow money for decades without exceeding the 50-cent cap.

The assumption is that, by the time the bond matures, the district's tax base will have expanded enough to allow it to pay the lump sum of principal and interest.

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A Message from the Comptroller

Texas' rapid growth has put a strain on much of our state's infrastructure, as anyone stuck in traffic in Austin or Houston knows.

And our public schools certainly haven't been

immune. Enrollment has surged by an average of more than 82,000 students each year over the last decade. Many Texas school districts are struggling to provide enough classrooms and facilities to accommodate an ever-increasing flood of new students.

Traditionally, Texas school districts have funded campus construction and renovation by issuing municipal bonds, which are repaid over time with property taxes. To cope with rapid growth, however, some districts are using a different financial vehicle, the *capital appreciation bond*, or CAB. In this issue of *Fiscal Notes*, we take a look at this increasingly popular but controversial option. CABs give school districts more financial freedom to expand, but at a high price over the long run.

We also examine Texas' regional economies through the lens of "industry clusters," a term for regional concentrations of related industries and businesses. Think of IT hubs like Austin and Silicon Valley, or Midland's energy companies. Industry clusters can make a regional economy shine — but may put them in the doldrums in a downturn.

As always, I hope you enjoy this issue!



Glenn Hegar
GLENN HEGAR
 Texas Comptroller of Public Accounts

REGIONAL SNAPSHOT: UPPER EAST REGION

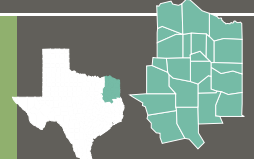
As the state's chief financial officer, I'm charged with monitoring the state's economic health. Therefore, it's vitally important that my office studies factors related to our regional economies.

The 23 counties comprising the Upper East Region have helped boost Texas' remarkable growth and resiliency over the past 10 years.

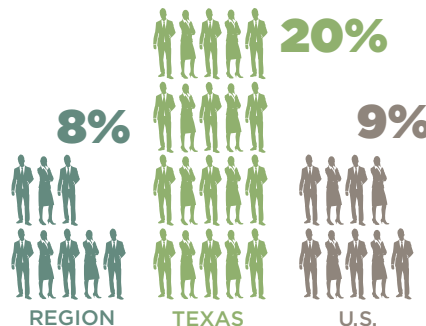
-GLENN HEGAR
 Texas Comptroller of Public Accounts

UPPER EAST REGION COUNTIES:

ANDERSON	FRANKLIN	MARION	SMITH
BOWIE	GREGG	MORRIS	TITUS
CAMP	HARRISON	PANOLA	UPSHUR
CASS	HENDERSON	RAINS	VAN ZANDT
CHEROKEE	HOPKINS	RED RIVER	WOOD
DELTA	LAMAR	RUSK	



POPULATION GROWTH



Source: U.S. Bureau of Economic Analysis

UPPER EAST REGION VS. TEXAS AND U.S. / 2003-2013

EMPLOYMENT IN THE UPPER EAST REGION'S CONSTRUCTION INDUSTRY INCREASED NEARLY

40%

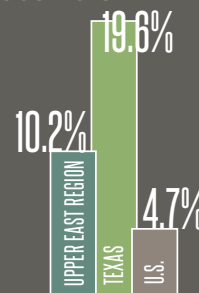
FROM 2003 TO 2013. THAT'S FOUR TIMES THE GROWTH IN TEXAS AS A WHOLE.

Source: U.S. Census Bureau

JOBS & WAGES

JOB GROWTH 2003-2013

Average wages in the Upper East Region increased nearly 39 percent from 2003 to 2013. The 2013 average wage of \$39,273 was lower than the \$50,572 state average.



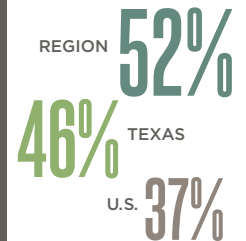
Source: Economic Modeling Specialists Intl.

THE UPPER EAST REGION ACCOUNTS FOR ABOUT 19 PERCENT OF TEXAS CHRISTMAS TREE PRODUCTION.



Source: United States Department of Agriculture and Texas Comptroller of Public Accounts

PER CAPITA PERSONAL INCOME GROWTH 2003-2013

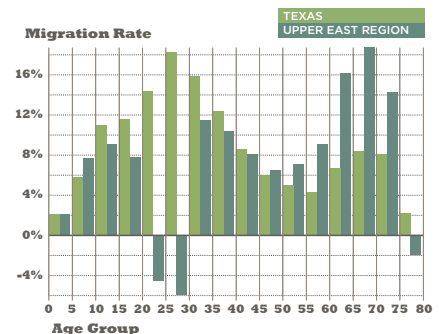


Source: U.S. Bureau of Economic Analysis and Texas Comptroller of Public Accounts

AGING WORKFORCE

By most metrics, the Upper East Region has one of the state's oldest populations. Its labor force participation ranks among the state's lowest. Banking, legal, accounting, medical and other professional services have a high proportion of workers aged 55 and above. Many employers may struggle to replace such professionals as they retire.

NET IN-MIGRATION RATES BY AGE 2000-2010



Source: Applied Population Laboratory, University of Wisconsin-Madison and Texas Comptroller of Public Accounts

FOR A COMPLETE LIST OF REGIONAL SNAPSHOTS, VISIT: TEXASAHEAD.ORG/REGIONALRPTS

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PROS AND CONS

Proponents of CABs say they help fast-growing districts cope with increasing enrollment when their tax bases have not yet caught up to their growth. In Texas, CABs present an increasingly popular financing option for districts, typically smaller and/or faster-growing than average, which are at or close to the state’s 50-cent limit on bond debt (**Exhibit 1**).

CABs generally offer longer terms than conventional bonds, allowing investors to reap a greater amount of compounded interest over time — and allowing borrowers to defer debt service payments for decades. CABs allow school districts to “build now, pay later” — “later” being many years down the road, when the tax base may have grown enough to make repayment less of a burden. Some districts may set aside money along the way to ease the burden when their CABs reach maturity.

Overreliance on CABs, however, can be costly for school districts when the eventual lump-sum payments become due. According to Texas Bond Review Board

CONTINUED ON PAGE 4

BONDS 101

The cost of a bond is determined by many factors, such as the timing of repayment, the interest rate, the issuer’s credit rating and bond market conditions. A rating system helps potential investors determine the level of risk associated with each bond purchase. Credit rating agencies, such as Fitch and Standard & Poor’s, rate bond issuers based on their ability to repay debt and on the risk of default. The highest-quality bonds are rated Aaa or AAA, depending on the rating agency.

EXHIBIT 1

FAST-GROWTH* TEXAS SCHOOL DISTRICTS WITH DEBT SERVICE TAX RATES CLOSE TO OR AT THE 50-CENT CAP

DISTRICT	COUNTY	ENROLLMENT, 2015	ENROLLMENT GROWTH RATE, 2010 TO 2015	DEBT SERVICE TAX RATE, 2014
Prosper ISD	Collin	7,060	95%	\$0.50
Lubbock-Cooper ISD	Lubbock	5,307	43%	\$0.50
New Caney ISD	Montgomery	12,937	35%	\$0.50
Anna ISD	Collin	2,858	28%	\$0.50
Manor ISD	Travis	8,819	28%	\$0.48
Princeton ISD	Collin	3,787	27%	\$0.45
Dripping Springs ISD	Hays	5,410	25%	\$0.48
Liberty Hill ISD	Williamson	3,210	25%	\$0.50
Schertz-Cibolo-Universal City ISD	Guadalupe	14,586	25%	\$0.45
Hays ISD	Hays	17,904	23%	\$0.50
Hutto ISD	Williamson	6,177	21%	\$0.50
Frenship ISD	Lubbock	8,811	21%	\$0.48
Leander ISD	Williamson	36,105	19%	\$0.47
Crandall ISD	Kaufman	3,291	19%	\$0.48
Denton ISD	Denton	26,746	19%	\$0.50
Lovejoy ISD	Collin	3,810	19%	\$0.50
Dickinson ISD	Galveston	10,391	18%	\$0.50
Wylie ISD	Collin	13,978	16%	\$0.47
Forney ISD	Kaufman	8,982	15%	\$0.50
Royse City ISD	Rockwall	5,061	15%	\$0.50
Little Elm ISD	Denton	6,921	14%	\$0.50
Allen ISD	Collin	20,554	14%	\$0.48
White Settlement ISD	Tarrant	6,646	13%	\$0.50
Needville ISD	Fort Bend	2,911	12%	\$0.56 **
Burleson ISD	Johnson	10,957	11%	\$0.50

Note: Not all of these districts have used CABs.

*The Fast Growth School Coalition identifies a “fast-growth” school district using the following criteria: (1) enrollment of at least 2,500 students during the previous school year and either (2) enrollment growth over the last five years of at least 10 percent or (3) 3,500 or more students.

**Needville ISD was already above 50 cents when the cap became law.

Sources: Texas Education Agency and Texas Comptroller of Public Accounts

(BRB) data, as of the end of fiscal 2014 Forney ISD had issued four of the 20 most expensive CABs outstanding for Texas school districts. For just under \$30 million in immediate funding, the district will have to repay more than \$208 million when the bonds reach maturity in 30 to 40 years.

Due to compounded interest, CABs can be *much* more expensive for borrowers than traditional municipal bonds (Exhibit 2).

CABS IN TEXAS

Texas school districts have used CABs for decades, sometimes for construction projects and sometimes to refinance existing debt, and thus avoid spikes in tax rates. According to data submitted to the BRB, school districts accounted for 99 percent of all CABs issued in Texas in fiscal 2014. In that year, CAB debt represented 5.1 percent of all school bond debt.

While the BRB staff acknowledges that CABs can be an effective financing tool — if used moderately and with reasonable terms — an analysis prepared by them in 2014 noted that heavy CAB use can result in a downgrade of a district’s bond rating.

Some Texas lawmakers have expressed concern that several fast-growing school districts are using the bonds to sidestep the 50-cent debt limit, gambling on growth in the tax base while sharply increasing the overall debt to be thrust on future generations.

Texas’ Fast Growth School Coalition, a network of school leaders facing the challenges of rapidly increasing enrollment, maintains that CABs are necessary because of the state’s limit on bond debt, which prevents many districts from incurring additional debt even when voters approve it.

BONDS 101

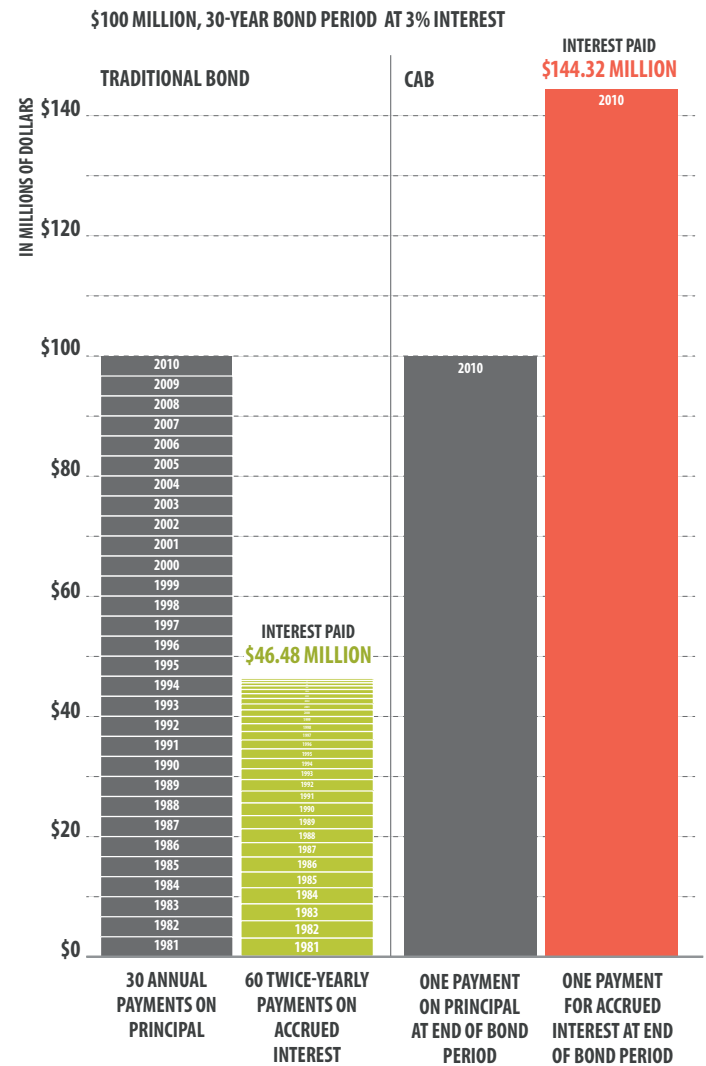
Bonds include U.S. government securities, municipal bonds, corporate bonds, mortgage-backed bonds, foreign government bonds and others. In general, U.S. federal bonds and bonds issued by other highly rated governmental entities are considered to be the safest investment, followed by municipal bonds and then corporate bonds. The lower the risk, however, the lower the interest rate the investor can earn.

Bonds issued by states, cities, counties and other governmental entities are collectively called municipal bonds. Most municipal bonds pay interest on a semiannual basis, at the same rate over their entire term. They usually offer investors income that is exempt from federal income taxes.

EXHIBIT 2

TRADITIONAL BONDS VS. CAPITAL APPRECIATION BONDS

To understand the difference between traditional bonds and CABs, consider a district seeking \$100 million with a 30-year maturity and a 3 percent interest rate. With a traditional bond issue, principal and interest are repaid over the entire 30-year term. CABs allow the district to avoid any payments until maturity — but interest payments will be more than three times higher.



Source: Texas Comptroller of Public Accounts

LIMITS ON CABS

CABs are controversial due largely to the way the associated debt can balloon over time. California and — recently — Texas have enacted limits on the use of CABs; Michigan has banned them altogether.

In 2013, California enacted a law limiting total debt service on CABs to four times the principal plus a



BONDS 101

A *capital appreciation bond*, or CAB, is a municipal security on which the interest on principal accrues and compounds until maturity, at which time the investor receives a single payment representing the face value of the bond and all accrued interest.

The difference between more traditional bonds and CABs primarily concerns the timing of interest repayment. With a conventional bond, the issuer pays accrued interest on the principal in installments until the debt is retired. With a capital appreciation bond, interest installments are not required for the duration of the bond. At maturity, the issuer must pay the entire principal plus years of compounded interest. The avoidance of installment payments thus results in much higher interest costs.

maximum of 25 years' worth of interest. The law also requires CAB transactions to allow for early repayment of the debt when terms are longer than 10 years. The law originated, in part, due to media reports that \$105 million in CABs issued by San Diego-area Poway Unified School District would ultimately cost the district nearly \$1 billion.

The 2015 Texas Legislature considered several bills pertaining to CABs, but only one, House Bill 114 by Representative Dan Flynn of Northeast Texas, became law.

H.B. 114, which went into effect Sept. 1, 2015, prohibits Texas local governments from issuing CABs secured by property taxes with terms of more than 20 years, and (with some exceptions) from refunding CABs to extend their maturity dates. It also limits each government's CAB debt to no more than 25 percent of its total outstanding bond debt. CAB issuers, moreover, must provide certain information to the public, including the total amount sought through the CAB issue, its length of maturity and purpose, as well as the issuer's total outstanding bond debt and the amount of principal and interest to be paid at maturity.



Westside Elementary in Leander ISD, a significant user of CABs

USING CABs

When properly used, CABs can provide funding for local governments that are growing rapidly — those that know their tax bases will increase, thus allowing them to handle greater future costs. CABs can be a very expensive form of borrowing, however, leaving large debts to accrue in the decades to come. Both the risks and advantages of CABs should be considered when determining the best option for funding. They may be an option in some cases, but should be approached with caution.

As for Forney ISD, the district issued a press release in April 2015 announcing it will issue no new debt through 2027. While the district is working on other solutions to address anticipated growth, its decision to halt borrowing will help to ensure fiscal responsibility and, as the press release concluded, “to develop into a strong and efficient District.”

For more information on Texas local government debt, visit the Comptroller's Debt at a Glance online tool at texastransparency.org, and the Texas Bond Review Board at brb.state.tx.us. **FN**

Industry Specialization in Texas

by David Green

A DIFFERENT WAY TO EXAMINE THE STATE ECONOMY



manufacturers, their suppliers and subcontractors and those that provide specialized services to them.

Research suggests that industry clusters are associated with increased entrepreneurial activity and employment growth. The “knowledge spillovers” that accompany specialization can spur the development of related or support industries, while concentrations of allied companies often enjoy lower business costs.

CLUSTER TYPES

The Harvard Business School’s U.S. Cluster Mapping Project has identified 51 types of “traded” clusters in the U.S. economy, encompassing 778 different industries as defined by the federal government’s North American Industry Classification System. *Traded* clusters are concentrations of related

For decades, researchers have pondered the question of economic diversity.

To most casual observers, a “diverse” economy — one that draws its strengths from a broad variety of industries — is self-evidently a good thing. Texas’ continued strength in the face of plunging oil prices is a clear example of how increasing diversification can protect overall economic health when one part of the industrial mix enters rough waters.

On the other hand, there’s no doubt that economic specialization has paid off handsomely for the Silicon Valley area and other research hubs, just as it once did for Detroit — until it didn’t.

One way to gauge specialization is to consider what are called “industry clusters” — a cluster being a group of interrelated firms in a single area that provide related products or services and share similar needs for workers and suppliers. A cluster thus may include product

industries that sell to *other regions and nations*. Examples include oil and gas production and transportation; aerospace and defense; and financial services.

The project also described 16 *local* clusters containing 310 industries. Local clusters include groups of related industries that sell primarily to *local markets*, such as local utilities and health services.

Traded clusters are often unique to one or a few regions, while local clusters typically can be found in every U.S. region. And traded clusters play an outsized role in regional economic competitiveness and vitality; their industries comprise just 36 percent of total U.S. employment yet account for 50 percent of total income and 97 percent of U.S. patents. Thus traded employment is healthy for any region, as its industries are associated with high-paying jobs and innovation.

Traded industry employment accounted for nearly 37 percent of private Texas employment in 2013, slightly

EXHIBIT 1

SHARE OF TOTAL EMPLOYMENT IN TRADED INDUSTRIES IN TEXAS METRO AREAS, 2003 AND 2013

YEAR	DALLAS-FORT WORTH	HOUSTON	SAN ANTONIO	AUSTIN-ROUND ROCK	EL PASO	BEAUMONT-PORT ARTHUR	CORPUS CHRISTI	MIDLAND	MCALLEN-EDINBURG-MISSION	ODESSA	TEXAS	UNITED STATES
2003	41.4	40.7	34.8	39.1	30.9	31.7	31.7	35.1	23.5	34.3	37.3	37.3
2013	37.7	38.5	32.8	34.9	25.7	33.1	27.5	48.6	19.0	41.9	36.6	36.0

Source: Texas Comptroller of Public Accounts analysis based on U.S. cluster mapping data, Institute for Strategy and Competitiveness, Harvard Business School

down from 2003 levels (**Exhibit 1**). This share varies widely across the state, though. Traded cluster employment accounted for nearly half of Midland’s total employment in 2013, but just 19 percent in McAllen. According to the U.S. Bureau of Economic Analysis, the Midland metro area had a per capita personal income of \$96,463 in 2014, versus just \$23,753 in McAllen.

As the exhibit shows, traded employment declined in Texas and most of its metros in this 10-year period, other than in the resource-rich areas of Midland and Odessa.

MEASURING INDUSTRY CONCENTRATION

We can examine industry clusters in Texas and its metropolitan areas using a simple ratio called a *location quotient* (LQ), which compares an industry’s share of jobs in a specific geographic area to its share in a larger one.

For our purposes, an LQ equal to 1.00 means the state or metro share is the same as the national share; a value above 1.00 indicates the industry is more concentrated in the state or metro region than it is in the nation as a whole.

In other words, the higher the LQ value, the more concentrated the industry.

Exhibit 2 shows the five most highly concentrated industry clusters in Texas, and their employment performance between 2003 and 2013.

Some of the state’s most specialized clusters are obvious, such as its concentration of oil and gas industries and those involved with transportation and logistics, given the state’s proximity to an international border and its many seaports and airports. But the state also has an above-average presence in smaller industry clusters such as footwear manufacturing.

EXHIBIT 2

TEXAS’ FIVE MOST HIGHLY CONCENTRATED TRADED CLUSTERS, 2013; EMPLOYMENT CHANGE, 2003-2013

INDUSTRY CLUSTER	LOCATION QUOTIENT		EMPLOYMENT		EMPLOYMENT CHANGE	
	2003	2013	2003	2013	TOTAL	PERCENT
OIL AND GAS PRODUCTION AND TRANSPORTATION	5.59	5.38	157,560	310,019	152,459	96.8%
CONSTRUCTION PRODUCTS AND SERVICES	1.89	2.26	93,923	147,106	53,183	56.6%
FOOTWEAR	1.54	2.23	2,910	2,824	-86	-3.0%
UPSTREAM CHEMICAL PRODUCTS	2.60	2.07	33,941	29,918	-4,023	-11.9%
TRANSPORTATION AND LOGISTICS	1.46	1.27	170,570	167,944	-2,626	-1.5%
←-- DECREASE					INCREASE --→	

Source: Texas Comptroller of Public Accounts analysis based on U.S. cluster mapping data, Institute for Strategy and Competitiveness, Harvard Business School

Unsurprisingly, given that the decade captures a period of rapid population growth in Texas as well as the shale boom, the greatest employment gains were seen in the clusters involving oil and gas production and construction activity. Construction employment rose by 57 percent, more than four times the national pace of growth for this cluster.

Note also that the degree of cluster specialization can change over time. For example, employment in the oil and gas production and transportation cluster nearly doubled in Texas from 2003 to 2013, yet its LQ value declined. Possible explanations are robust job growth in other Texas industries, indicating growing economic diversity, and strong oil and gas growth in other regions of the U.S. For footwear manufacturing, by contrast, LQ values increased despite job losses, indicating that the industry suffered greater relative losses in the nation than in Texas.

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EXHIBIT 3

**FIVE MOST HIGHLY CONCENTRATED TRADED CLUSTERS IN TEXAS' MAJOR METRO AREAS, 2013;
EMPLOYMENT CHANGE, 2003-2013**

AREA	CLUSTER	LOCATION QUOTIENT		EMPLOYMENT		EMPLOYMENT CHANGE	
		2003	2013	2003	2013	TOTAL	PERCENT
DALLAS-FORT WORTH	Aerospace Vehicles and Defense	3.52	3.60	45,097	46,983	1,886	4.2%
	Financial Services	1.22	1.76	68,075	81,811	13,736	20.2%
	Transportation and Logistics	1.62	1.52	65,266	59,325	-5,941	-9.1%
	Communications Equipment and Services	2.51	1.50	30,558	17,176	-13,382	-43.8%
	Oil and Gas Production and Transportation	1.47	1.46	14,265	24,994	10,729	75.2%
HOUSTON	Oil and Gas Production and Transportation	8.29	6.72	66,931	104,851	37,920	56.7%
	Upstream Chemical Products	5.12	4.15	19,135	16,293	-2,842	-14.9%
	Construction Products and Services	3.04	3.31	43,231	58,340	15,109	34.9%
	Water Transportation	2.33	2.11	13,421	14,230	809	6.0%
	Environmental Services	1.92	1.79	2,591	3,467	876	33.8%
SAN ANTONIO	Footwear	12.39	19.13	1,810	1,810	0	0.0%
	Construction Products and Services	0.92	4.22	3,548	20,520	16,972	478.4%
	Financial Services	1.28	2.13	16,006	25,003	8,997	56.2%
	Jewelry and Precious Metals	1.26	1.93	325	299	-26	-8.0%
	Insurance Services	1.92	1.88	16,611	17,508	897	5.4%
AUSTIN	Jewelry and Precious Metals	7.29	5.03	1,770	750	-1,020	-57.6%
	Information Technology and Analytical Instruments	5.47	3.22	35,574	20,265	-15,309	-43.0%
	Communications Equipment and Services	1.15	1.46	2,968	4,056	1,088	36.7%
	Biopharmaceuticals	1.87	1.45	2,440	1,995	-445	-18.2%
	Business Services	1.18	1.32	55,995	86,473	30,478	54.4%
EI PASO	Footwear	20.98	35.53	820	750	-70	-8.5%
	Leather and Related Products	3.08	6.98	200	295	95	47.5%
	Agricultural Inputs and Services	1.13	3.69	157	482	325	207.0%
	Transportation and Logistics	2.18	3.26	5,265	7,175	1,910	36.3%
	Apparel	7.11	3.03	3,161	561	-2,600	-82.3%

Source: Texas Comptroller of Public Accounts analysis based on U.S. cluster mapping data, Institute for Strategy and Competitiveness, Harvard Business School

←-- DECREASE INCREASE --→

Exhibit 3 extends this analysis to Texas' five largest metropolitan areas, showing the most concentrated industry clusters in each.

Exhibit 3 illustrates some well-known regional strengths, such as aerospace and financial services in the Metroplex and information technology in Austin. Similarly, El Paso's increasing concentration in transportation and logistics obviously reflects its strategic location on the border.

And again, LQ values can shift regardless of employment gains and losses. El Paso's footwear cluster saw job losses yet its LQ increased considerably. Four of the Houston metro area's five most concentrated industries became less concentrated over the decade, yet all but one saw employment gains.

Specialization declined with heavy job losses in the Austin area's innovative cluster of information technology

and analytical instruments, as did communications equipment and services in DFW. These clusters include highly disruptive and competitive industries, with employment consistently threatened by technological change and international competition.

IT job losses were particularly large in the Austin area, which lost more than 15,000 jobs, mostly in computer and semiconductor manufacturing. As these IT manufacturing jobs disappeared, however, the area's skilled workers were well positioned to take advantage of emerging technologies in cloud computing, mobile technology and e-commerce, which fall in the business services cluster.

Between 2003 and 2013, this cluster added nearly 30,500 jobs in the Austin metro area. Austin continues to attract high-profile technology companies, including corporate campuses planned by Apple Inc. and Oracle.



A CLOSER LOOK: OIL AND GAS

Obviously, the oil and gas production and transportation cluster is heavily concentrated in Texas. In 2013, the state had 310,000 jobs in the cluster, about 45 percent of its total U.S. employment. The top three U.S. metros for employment in oil and gas were Houston-The Woodlands-Sugar Land (104,851 jobs), Dallas-Fort Worth-Arlington (24,994) and Midland (23,022). Three Texas metro areas also topped the nation for their percentage of oil and gas cluster employment as a share of *total* private employment: Midland (28.5 percent), Odessa (14.8 percent) and Victoria (10.9 percent).

Oil and gas cluster employment in Texas rose by 97 percent from 2003 to 2013, versus 75 percent nationwide. Texas accounted for half of the cluster's U.S. job creation during this decade.

Despite its rapid growth, direct employment in the oil and gas cluster represented only 3.2 percent of Texas' private, nonfarm jobs in 2013, up from 2.0 percent in 2003. Its concentration, however, varies widely among the state's metropolitan areas (**Exhibit 4**).

Midland's share of total private employment in the oil and gas cluster more than doubled between 2003 and 2013. Odessa's cluster share nearly tripled, while Victoria's quintupled. In Houston's more diverse economy, the cluster share edged up only slightly.

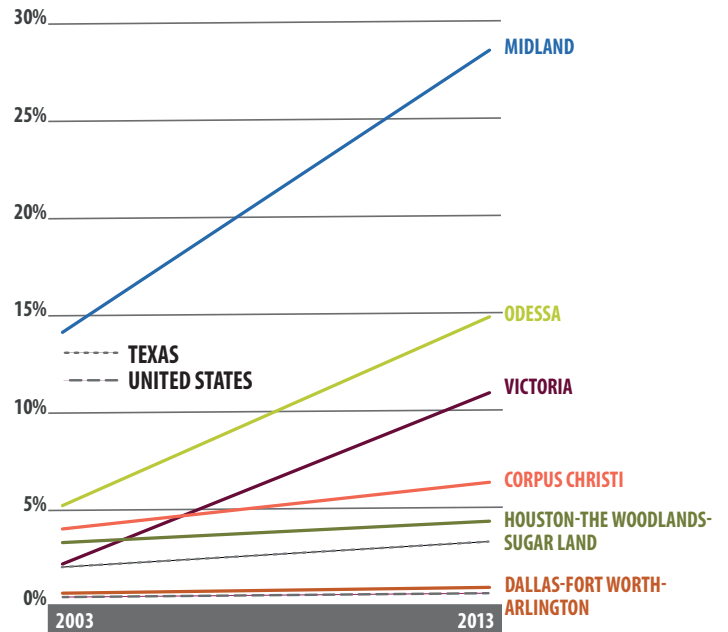
OVERSPECIALIZATION?

The oil and gas production and transportation cluster comprises six "sub-clusters" — oil and gas extraction, support activities for oil and gas operations, well drilling, pipeline transportation, oil and gas machinery and petroleum processing.

Consider, for example, the composition of the cluster in two of Texas' major oil and gas hubs, Houston and Midland. Midland's activity is almost exclusively in drilling and extraction. In Houston, oil and gas activity is

EXHIBIT 4

EMPLOYMENT IN OIL AND GAS PRODUCTION AND TRANSPORTATION AS A SHARE OF TOTAL PRIVATE EMPLOYMENT IN SELECTED TEXAS METROS, 2003 AND 2013



Source: Texas Comptroller of Public Accounts

much more diverse, with a large share of jobs in related machinery manufacturing, transportation and processing (**Exhibit 5**).

In short, not only is the Midland area highly concentrated in the oil and gas cluster, it's highly concentrated in one *portion* of the cluster — one likely to make the area economy much more sensitive to changing oil prices, since extraction invariably declines when prices make it less profitable.

CONTINUED ON PAGE 10

EXHIBIT 5

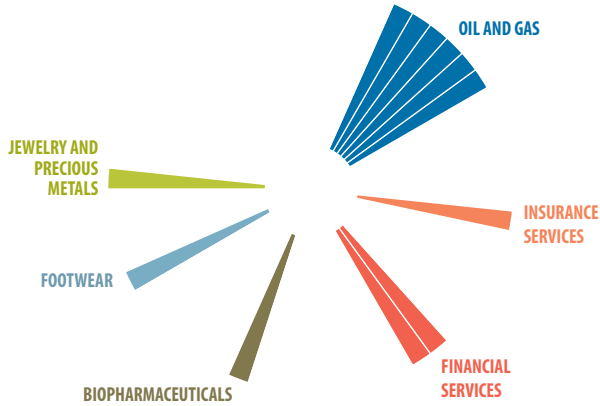
SHARE OF OIL AND GAS SUB-CLUSTER EMPLOYMENT, 2013

SUB-CLUSTER	TEXAS	HOUSTON-THE WOODLANDS-SUGAR LAND	MIDLAND
SUPPORT ACTIVITIES FOR OIL AND GAS OPERATIONS	44.0%	26.7%	52.1%
OIL AND GAS EXTRACTION	16.9%	17.3%	23.4%
WELL DRILLING	14.3%	14.1%	19.0%
OIL AND GAS MACHINERY MANUFACTURING	11.5%	24.2%	1.9%
PIPELINE TRANSPORTATION	7.7%	10.7%	3.5%
PETROLEUM PROCESSING	5.6%	7.0%	0.0%
TOTAL CLUSTER EMPLOYMENT	310,019	104,851	23,022

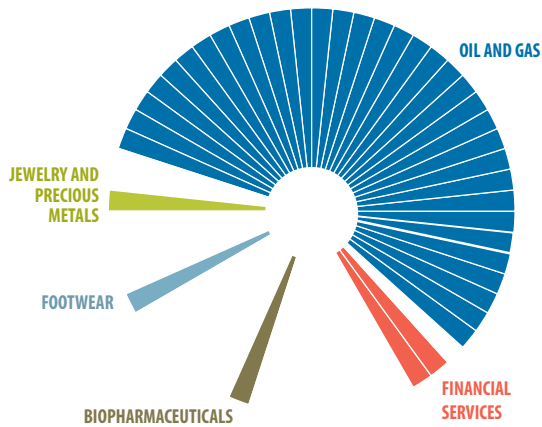
Source: Texas Comptroller of Public Accounts analysis based on U.S. cluster mapping data, Institute for Strategy and Competitiveness, Harvard Business School

THE ECONOMIC EFFECTS OF CLUSTER SPECIALIZATION AND DIVERSITY*

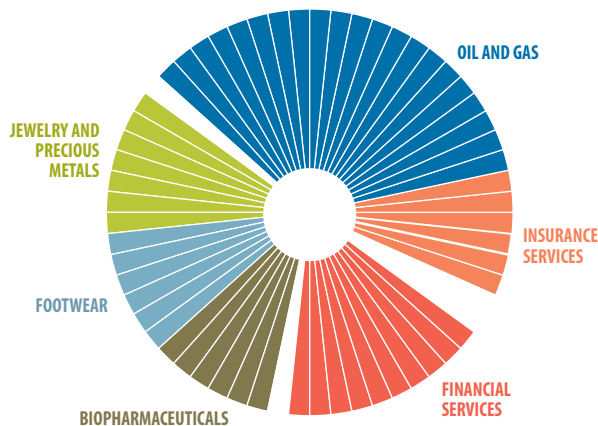
TOO LITTLE SPECIALIZATION:
BUSINESSES LOSE THE ABILITY TO COLLABORATE FOR GROWTH



OVERSPECIALIZATION:
ECONOMIC STABILITY IS AT RISK TO MARKET FLUCTUATION



DIVERSIFIED SPECIALIZATION:
COLLABORATIVE GROWTH AND RISK AVOIDANCE



*These illustrations visually explain the concept of cluster specialization and diversity and are not based on actual Texas data.

SPECIALIZATION: TOO MUCH OR TOO LITTLE?

Economic specialization and diversity are both notoriously difficult to measure. Based on most studies in this area, however, one generalization seems largely true: for local and regional economies, specialization can drive economic growth, while diversity promotes economic stability, especially in the face of recession.

The most basic argument for economic diversity resembles the conventional wisdom for personal finances: a diverse portfolio spreads and therefore minimizes risk.

Of course, the concepts aren't necessarily mutually exclusive. A 2008 study noted that the ideal setting for entrepreneurial activity "is probably a diversified city made up of many specialized clusters."

The presence of multiple industry clusters can allow regions to adapt to changing economic realities. While Houston's oil and gas cluster is reeling from falling oil prices, for instance, the Greater Houston Partnership expects that many of its oil and gas job losses will be cushioned by job gains in petrochemicals and construction, led by the area's \$50 billion investment in its burgeoning petrochemical corridor.

Industry specialization and economic diversity aren't opposites. While they certainly pull in different directions, together they help strike the kind of economic balance that allows Texas not only to enjoy increasing economic growth but also to better weather economic shocks.

The state, along with many of its metropolitan areas, appears to have learned from the last oil bust, diversifying enough to survive and succeed despite downturns.

While natural resources, population and other critical economic variables differ across Texas' regions, wherever localities *can* foster some specialization while maintaining economic diversity, the evidence suggests they *should*.

For more information on Texas' regional economies, see the Comptroller's regional reports at texasahead.org/regionalrpts. **FN**

State Revenue Watch

This table presents data on net state revenue collections by source. It includes most recent monthly collections, year-to-date (YTD) totals for the current fiscal year and a comparison of current YTD totals with those in the equivalent period of the previous fiscal year.

These numbers were current at press time. For the most current data as well as downloadable files, visit TexasTransparency.org.

Note: Texas' fiscal year begins on Sept. 1 and ends on Aug. 31.

NET STATE REVENUE — All Funds Excluding Trust

(AMOUNTS IN THOUSANDS)

Monthly and Year-to-Date Collections: Percent Change From Previous Year

Tax Collections by Major Tax	JANUARY 2016	YEAR TO DATE: TOTAL	YEAR TO DATE: CHANGE FROM PREVIOUS YEAR
SALES TAX	\$2,468,744	\$11,895,893	-2.51%
PERCENT CHANGE FROM JANUARY 2015	-3.96%		
MOTOR VEHICLE SALES AND RENTAL TAXES	380,570	1,927,647	0.78%
PERCENT CHANGE FROM JANUARY 2015	-3.90%		
MOTOR FUEL TAXES	291,559	1,456,362	1.03%
PERCENT CHANGE FROM JANUARY 2015	1.39%		
FRANCHISE TAX	-24,280	-209,883	-54.91%
PERCENT CHANGE FROM JANUARY 2015	15.22%		
INSURANCE TAXES	19,067	89,211	-2.12%
PERCENT CHANGE FROM JANUARY 2015	5.03%		
NATURAL GAS PRODUCTION TAX	67,325	376,317	-47.40%
PERCENT CHANGE FROM JANUARY 2015	-43.73%		
CIGARETTE AND TOBACCO TAXES	101,751	535,542	-12.97%
PERCENT CHANGE FROM JANUARY 2015	-8.18%		
ALCOHOLIC BEVERAGES TAXES	105,698	483,699	3.67%
PERCENT CHANGE FROM JANUARY 2015	3.85%		
OIL PRODUCTION AND REGULATION TAXES	126,110	774,829	-48.43%
PERCENT CHANGE FROM JANUARY 2015	-45.76%		
UTILITY TAXES¹	48,556	166,433	-11.85%
PERCENT CHANGE FROM JANUARY 2015	-25.62%		
HOTEL OCCUPANCY TAX	33,612	204,585	0.09%
PERCENT CHANGE FROM JANUARY 2015	-7.00%		
OTHER TAXES²	9,275	\$55,491	-46.52%
PERCENT CHANGE FROM JANUARY 2015	-57.16%		
TOTAL TAX COLLECTIONS	3,627,987	\$17,756,126	-6.44%
PERCENT CHANGE FROM JANUARY 2015	-7.89%		
Revenue By Source	JANUARY 2016	YEAR TO DATE: TOTAL	YEAR TO DATE: CHANGE FROM PREVIOUS YEAR
TOTAL TAX COLLECTIONS	\$3,627,987	\$17,756,126	-6.44%
PERCENT CHANGE FROM JANUARY 2015	-7.89%		
FEDERAL INCOME	3,626,042	16,781,095	4.61%
PERCENT CHANGE FROM JANUARY 2015	7.51%		
LICENSES, FEES, FINES AND PENALTIES	1,388,927	5,110,960	11.01%
PERCENT CHANGE FROM JANUARY 2015	-6.00%		
INTEREST AND INVESTMENT INCOME	86,576	242,566	-22.40%
PERCENT CHANGE FROM JANUARY 2015	54.63%		
NET LOTTERY PROCEEDS³	361,571	1,002,292	29.69%
PERCENT CHANGE FROM JANUARY 2015	143.42%		
SALES OF GOODS AND SERVICES	22,599	128,428	-45.89%
PERCENT CHANGE FROM JANUARY 2015	-84.18%		
SETTLEMENTS OF CLAIMS	14,943	529,349	8.89%
PERCENT CHANGE FROM JANUARY 2015	90.01%		
LAND INCOME	39,330	461,652	-41.70%
PERCENT CHANGE FROM JANUARY 2015	-66.94%		
CONTRIBUTIONS TO EMPLOYEE BENEFITS	5	22	-18.06%
PERCENT CHANGE FROM JANUARY 2015	-8.15%		
OTHER REVENUE	385,565	1,751,532	21.58%
PERCENT CHANGE FROM JANUARY 2015	24.50%		
TOTAL NET REVENUE	\$9,553,544	\$43,764,022	0.22%
PERCENT CHANGE FROM JANUARY 2015	-0.21%		

¹ Includes public utility gross receipts assessment, gas, electric and water utility taxes and gas utility pipeline tax.

² Includes the cement and sulphur taxes and other occupation and gross receipts taxes not separately identified.

³ Gross sales less retailer commissions and the smaller prizes paid by retailers.

Note: Totals may not add due to rounding.



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