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Single-Family Housing Squeeze Eases in Texas; Multifamily Soars

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▶ *Texas is a dynamic economic laboratory in which growing pains are evident. Agile leadership is needed in Washington to help address the issues restraining activity here.*

Texas' economy is expansive, with greater growth in output, exports and job creation than the nation. Employment through the first 11 months of the year rose at a 3.6 percent annualized pace, compared with a 2.1 percent rate for the nation. That translates into 375,100 jobs added through November, more than during all of last year, when employment grew at a robust 2.7 percent.

Sam Houston, the Republic of Texas' first president in 1836 and later the new state's governor, had an abiding faith in Texas that he said lay in its abundant "natural advantages." It's unlikely that Houston had a hint of the rich geological resources underneath his feet—it wasn't until 1894 that the state's first economically significant oil discovery was made in Corsicana when the city began drilling for water.

Today, shale energy exploration has renewed attention on this abundant natural advantage, while contributing to the state's economic expansion and to some unexpected outcomes. Oil production has nearly doubled in Texas the past five years, helping create an oversupply of an ultralight crude oil called condensate. As Jesse Thompson writes in this issue of *Southwest Economy*, the Eagle Ford Shale in South Texas accounts for more than one-fifth of the nation's total condensate supply. A comprehensive, market-responsive policy addressing a federal ban on crude oil exports that limits condensate sales abroad would help ensure the health of this vital Texas economic contributor. Moreover, recently declining oil prices underscore the importance of energy resources to our state and country.

Our state's natural advantages have also helped propel a boom in the Texas multifamily real estate market. Laila Assanie notes in this issue that while multifamily projects abound, single-family housing starts have been slow to recover from the Great Recession. This unusual outcome—the product of lending policy constraints—has been unprecedented house price increases in a market accustomed to more steady appreciation.

Texas is a dynamic economic laboratory in which growing pains are evident. Agile leadership is needed in Washington to help address the issues restraining activity here. Ultimately, as the economic data show, the nation benefits when the Texas engine can help drive overall performance. That makes the stakes particularly significant at a time when the U.S. is regaining its economic footing.

A handwritten signature in black ink that reads "Richard W. Fisher". The signature is fluid and cursive, with a large initial 'R'.

*Richard W. Fisher
President and CEO
Federal Reserve Bank of Dallas*



Single-Family Housing Squeeze Eases in Texas; Multifamily Soars

By Laila Assanie

ABSTRACT: Single-family home sales in Texas—constrained by steadily rising prices, tight bank lending standards and insufficient new-house inventory—should gain traction in 2015. A booming apartment market moderates slightly amid still-elevated construction activity, occupancy rates and rents.

The Texas single-family housing market has lost some of the rapid momentum attained over the past two years. Home sales and new-home construction increased at double-digit rates in 2012 and 2013 as strong job growth and rising incomes drew new residents to the state. Although economic and population expansion remain robust, growth in home sales turned relatively flat in 2014 after the market experienced record-high prices, depleted existing-home inventories and declining affordability.

The lean inventories along with a strong Texas economy have spurred demand for new homes. However, persistent labor shortages, low lot supply, tight lending for land development and higher input costs have hindered construction. As a result, new-home supply trails demand, leading to rapid price appreciation.

In turn, affordability has declined, leaving entry-level buyers—typically accounting for an outsized share of Texas home purchasers—priced out of the market. However, easing lending constraints indicate construction of new houses could increase in 2015.

For now, demand has shifted to the multifamily market. The apartment market has faced similar building constraints—labor shortages and higher construction costs. But a strong appetite for apartments, supported in part by a favorable financing environment, has driven up construction and sent rents and occupancy to multiyear highs.

Rapid Home Price Gains

Texas has a vast supply of land and relatively few building regulations, typically allowing construction to respond quickly to demand and limiting price swings relative to what other large states

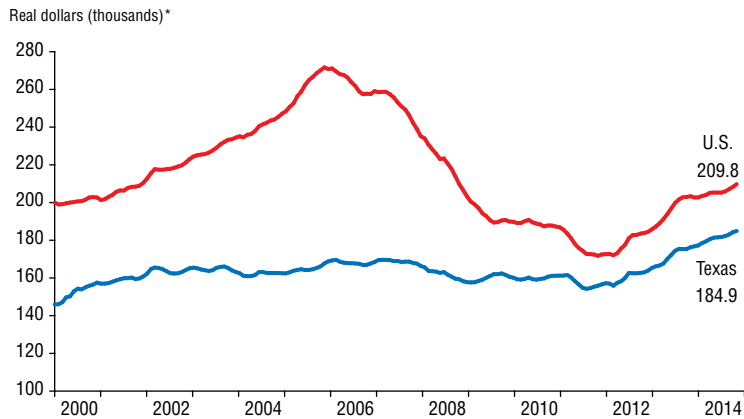
experience. For example, during the U.S. housing boom, Texas recorded modest home price appreciation even as prices nationwide reached record levels. While home prices in Texas advanced 3.6 percent in 2004 and 6 percent in 2005, nationally they rose 10 percent in both years.¹ Similarly, Texas prices were relatively restrained when the national housing market peaked and values collapsed.²

Things have played out differently during the housing recovery, with Texas price increases outpacing those nationally. In 2012, Texas saw a 6.9 percent price gain, compared with a 5.4 percent increase for the U.S. In 2013, the state at 7.4 percent was close to the nation's 7.7 percent gain.³

The rapid Texas increase pushed home prices to record levels. In the third quarter, prices stood 18.7 percent above where they were in fourth quarter 2007—the high before the housing bust. U.S. prices remain 6.2 percent below their prerecession peak, reached in first quarter 2007. Measures such as the S&P/Case Shiller index and data from the Multiple Listing Service (MLS) show a similar pattern of less volatility in Texas home prices during the U.S. housing boom–bust period, but an uncharacteristic surge during the recovery (*Chart 1*).

All indicators point to a slowing pace of appreciation in 2014—on average. Texas home prices increased 6.6 percent (annualized) through the third quarter, according to Federal Housing Finance Agency data (*Table 1*). Similarly, the real median home price was up an annualized 4.8 percent through October, compared with a 6.7 percent increase the year before. Anecdotally, housing consultants and sales agents report buyers are increasingly resistant to price increases.

Chart 1 | Texas Existing-Home Median Price Surges in Recovery



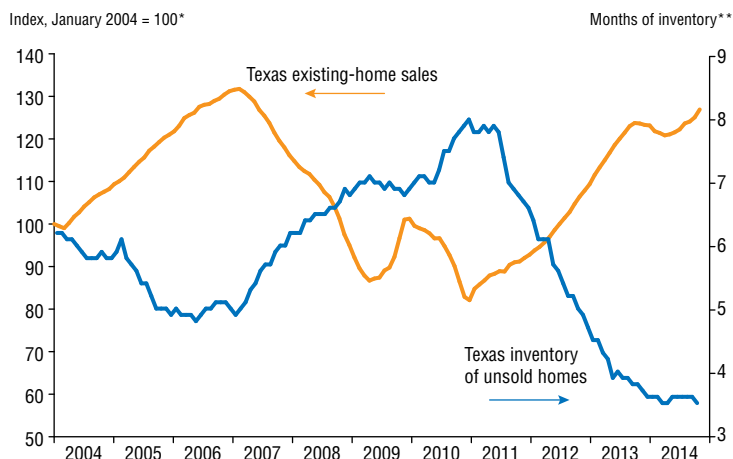
*Four-month moving average, seasonally adjusted.
 SOURCES: Multiple Listing Service; seasonal and other adjustments by Federal Reserve Bank of Dallas.

Table 1 | Texas Home Price Gains Slowing

	2014 year to date annualized		2013	
	Texas	U.S.	Texas	U.S.
*FHFA House Price Index (Q3)	6.6	4.4	7.4	7.7
**S&P/Case Shiller Index (Sept.)	5.9	2.8	10.2	13.4
MLS real median sales price (Oct.)	4.8	4.7	6.7	8.1

*Data are quarterly.
 **Dallas is used to approximate Texas.
 SOURCES: Federal Housing Finance Agency (FHFA); S&P/Case Shiller; Multiple Listing Service (MLS).

Chart 2 | Home Sales Rise, Inventories Fall to Record Low Levels



*Six-month moving average, seasonally adjusted.
 **Seasonally adjusted.
 SOURCES: Multiple Listing Service; seasonal and other adjustments by the Federal Reserve Bank of Dallas.

Improved Demand

Shrinking inventories, especially since 2012, significantly figure in the price run-up. Following the national bust, Texas home demand fell to levels not seen since 2002 as hiring slowed and sliding home prices kept cautious buyers on the sidelines. A temporary tax credit program provided a reprieve in 2009 that gave way to another sales drop the following year (*Chart 2*). Texas existing-home sales began improving in 2011, rising 1.7 percent amid tight credit conditions and new mortgage lending regulations that damped activity among first-time and lower-income buyers.

A booming Texas economy, in part due to a flourishing energy sector, subsequently attracted businesses and workers to the state and reinforced demand.⁴ Existing-home sales rose 15.2 percent in 2012 and 16.2 percent in 2013, the best year for Texas in terms of overall sales since the onset of the U.S. housing bust in 2006.

Inventories of existing homes were quickly depleted, falling in mid-2012 below the six-month threshold thought to signal adequate housing stock. Below that level, a “seller’s market” prevails as buyers bid up prices for what’s available. Inventories declined throughout 2012 and 2013, falling to a record low of 3.6 months of supply in December 2013 and holding steady at that level for most of 2014. Inventories in all of Texas’ major metros are at or near record lows.⁵ In October, inventories stood at 2.3 months in Dallas, 2.6 months in Fort Worth, 2.7 months in Houston and Austin, and 4.3 months in San Antonio. U.S. inventory in October was just above 5 months of supply.

Bad weather and rising mortgage interest rates crimped sales in the second half of 2013 and into early 2014.⁶ Sales picked up in spring 2014. Through the first 10 months of the year, existing-home sales in Texas were 2.4 percent ahead of year-ago levels—a much lower rate of increase than in 2012 and 2013.

Tight Credit, Supply Limitations

Homebuilding activity (as measured by single-family permits issued) is not only well below its prerecession peak but

also lower than the levels seen in 2002 and 2003, before the national housing boom. Among factors constraining building is a low supply of vacant developed lots, tight credit for land development, escalating land and materials costs and labor shortages.

After the Texas housing market peaked in late 2006, homebuilders sharply reduced new construction as demand weakened and inventories ballooned. Vacant developed lots (improved and ready for building) were at a 6-year supply in Dallas and nearly 3.5 years in Austin and Houston in mid-2009 (Chart 3). A 20- to 24-month supply is considered equilibrium, when neither builders nor developers have a pricing advantage. Financing for further land development—including in newer, high-demand areas—was tight from 2009 to 2011, hampering building.

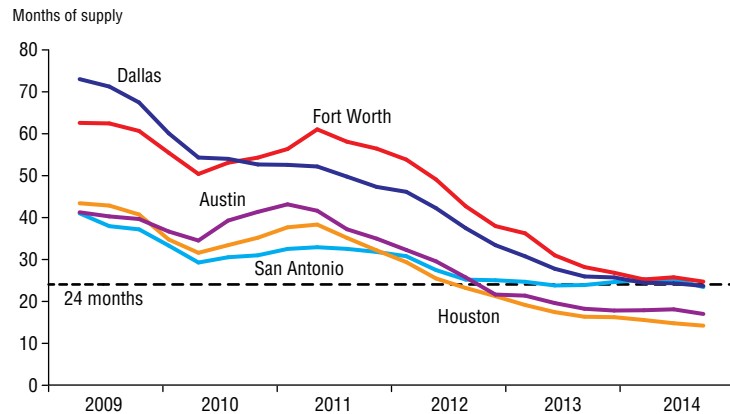
Tight Lot Supply

During the initial phase of the housing recovery, with lots in adequate supply, single-family permits issued throughout Texas grew from 63,876 in 2011 to 77,472 in 2012, or 21.3 percent. The permit growth rate slowed to 15.9 percent in 2013, reflecting bureaucratic delays due to cuts in local government personnel and shortages of skilled construction workers, some of whom had moved on to oil fields where the shale energy boom was fully underway. Meanwhile, the supply of buildable lots shrank in most major metros.

Lot supply was below the equilibrium level in Austin and Houston in third quarter 2014 and near the two-year threshold in Dallas, Fort Worth and San Antonio, as seen in Chart 3.⁷ Tight lot supply and builders' cost pressures have restricted the range of single-family housing types offered for sale, limiting new-home construction growth.

The Federal Reserve's senior loan officer survey results show that from 2008 to 2010, a higher share of respondents (loan officers) nationwide were tightening credit standards for commercial real estate loans, which include construction and land development loans for residential and nonresidential structures.

Chart 3 Vacant Developed Lot Supply Moves Below Equilibrium



NOTE: A 20- to 24-month supply of vacant developed lots is considered equilibrium.
SOURCE: Metrostudy.

The trend gradually reversed beginning in 2011, with an uptick among those reporting loosening credit requirements for these loans. More recently, in third quarter 2014, the survey suggests financing for construction and land development loans became significantly easier to obtain.⁸ Some industry participants confirm that bank willingness has further improved (see "On the Record," p. 8).

Moreover, labor shortages have lengthened the time it takes to build a home and reduced the number of units constructed. In Houston, some builders have placed cameras and armed guards at jobsites to prevent poaching of employees. Thus, single-family building remains soft even though permits were up 9.4 percent year to date through October compared with the same period in 2013.

Declining Affordability

A downside to the unprecedented run-up in Texas house prices is declining housing affordability over the past three years. Affordability is at multiyear lows in most major metropolitan areas, according to the Housing Opportunity Index, a measure of the percentage of homes sold that are affordable to the median-income family.⁹ This share has declined over time across all Texas metros.

More than 70 percent of homes sold in Austin, Dallas, Fort Worth and Houston in third quarter 2010 were considered affordable (Table 2). Despite relatively low interest rates and rising incomes, the share plunged to a near seven-year low in Dallas, Fort Worth, Houston and San Antonio in third quarter 2014.

Still, the Texas markets—with a median sales price of \$184,942 in October

Table 2 Housing Affordability Drops Sharply in 2014
(Percentage of homes sold, affordable to median-income family)

Area	2010:Q3	2012:Q3	2014:Q3
U.S.	72.1	74.1	61.8
Austin	73.9	73.3	61.2
Dallas	71.3	71.7	55.0
Fort Worth	79.8	80.8	64.6
Houston	72.5	70.5	55.5
San Antonio	68.7	73.3	57.2
Los Angeles	40.3	44.1	16.3
New York	22.6	28.5	21.6

SOURCE: National Association of Home Builders-Wells Fargo Housing Opportunity Index.

2014, according to MLS data—compare favorably to the national average of \$211,819. The proportion of Texans who can afford homes in the state’s big cities also remains significantly larger than the share in Los Angeles and Orange counties, 16.3 percent, and New York, 21.6 percent.

Entry-Level Buyer Squeeze

Entry-level buyers have been feeling particularly squeezed: Mortgages are difficult to obtain, while home prices are rising. New guidelines from government-

sponsored mortgage enterprises Fannie Mae and Freddie Mac, effective Dec. 1, ease lending standards and clarify guidelines for lenders. The revamped rules eliminate Fannie Mae’s requirement that a borrower put 20 percent down and are likely to motivate lenders to relax underwriting rules. This will allow low- and moderate-income borrowers greater access to credit, speeding up the review process and stimulating the housing industry.

Meanwhile, developers and builders have shifted away from entry-level hous-

ing toward a higher-priced, move-up product for two reasons. First, qualifying entry-level buyers for mortgages has been difficult and, second, it’s easier to recoup increasingly pricey material and labor costs with a more expensive offering.

Moreover, the scarcity of lots and homes has enabled builders to charge higher prices, while the number and proportion of under-\$200,000 homes has shrunk.

In San Antonio, traditionally among the most affordable new-home markets in the country, the share of home starts for units priced under \$200,000 plummeted from 65 percent in 2009 to 36 percent in 2014 (*Table 3*).¹⁰ Over the same period, starts of \$250,000–\$399,000 units increased from 15 percent to 27 percent—a pattern repeated in other major metropolitan areas in Texas.

Along with the decline in share, the absolute number of home starts—particularly homes priced under \$150,000—is down notably from 2009, when the housing market was in a fledgling stage of recovery.

A few builders are branching out into high-density products such as townhomes, patio homes or detached condos to meet growing demand from first-time or moderate-income buyers looking for less-expensive options.

Some entry-level buyers have turned to the existing-home market, where an estimated 56 percent of homes sold throughout Texas this year were below \$200,000, according to MLS data compiled by the Texas A&M Real Estate Center (*Chart 4*). The proportion of such homes sold relative to the overall market held relatively steady at around 70 percent from 2007 to 2010 before rapid appreciation took hold the past three years, especially in Austin, Dallas and Houston.

Multifamily Recovery

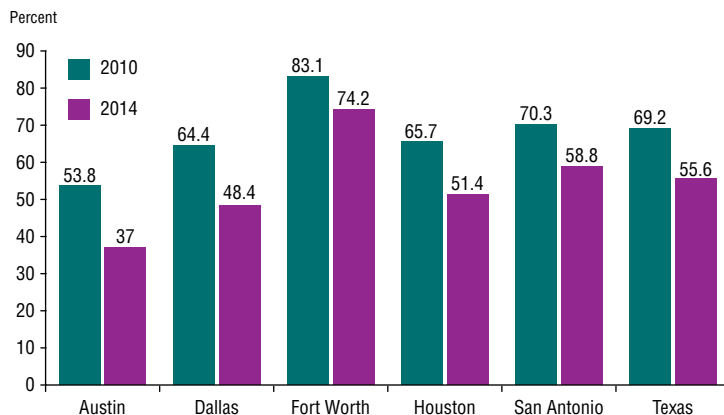
Multifamily construction has been off the charts since bottoming out in late 2009, especially when compared with single-family activity (*Chart 5*). Texas apartment permits—a measure of multifamily building activity—rose rapidly from 2010 to 2012, reaching prerecession levels by the end of 2013. The biggest

Table 3 Recent Home Starts Reflect More Expensive Product*

	Percent of homes priced under \$200,000		
	2009:Q3	2012:Q3	2014:Q3
Austin	51	41	26
Dallas	43	31	18
Fort Worth	63	55	33
Houston	53	43	30
San Antonio	65	53	36
	Percent of homes priced from \$250,000-\$399,000		
	2009:Q3	2012:Q3	2014:Q3
Austin	21	29	35
Dallas	24	33	37
Fort Worth	13	17	29
Houston	20	27	32
San Antonio	15	21	27

*Starts data are annualized.
SOURCE: Metrostudy.

Chart 4 Share of Entry-Level Homes Sold Drops Markedly
(Existing homes priced below \$200,000 as a percentage of all existing-home sales)



*2014 estimate.
NOTES: Data represent Multiple Listing Service housing activity only. Residential data include single-family homes, townhomes and condominiums.
SOURCE: Real Estate Center at Texas A&M University.

jump, 73 percent, occurred between 2011 and 2012.

Multifamily building activity achieved a new high in early 2014 before moderating. Total permits covering 54,773 individual apartment units were issued through October, up 20 percent from the year-ago period. At the end of third quarter 2014, about 28,000 units were under construction in Dallas–Fort Worth, 32,600 in Houston, 12,000 in Austin and 9,000 in San Antonio.¹¹

As the state’s economic recovery took hold in 2010, falling house prices along with an improving job market and tight credit redirected demand from single-family to multifamily product. Heightened leasing activity led to a steady decline in apartment vacancy rates in Texas’ major metropolitan areas beginning in 2010, pushing nominal rents to well above prerecession highs in all major Texas metros by early 2012 (Chart 6).

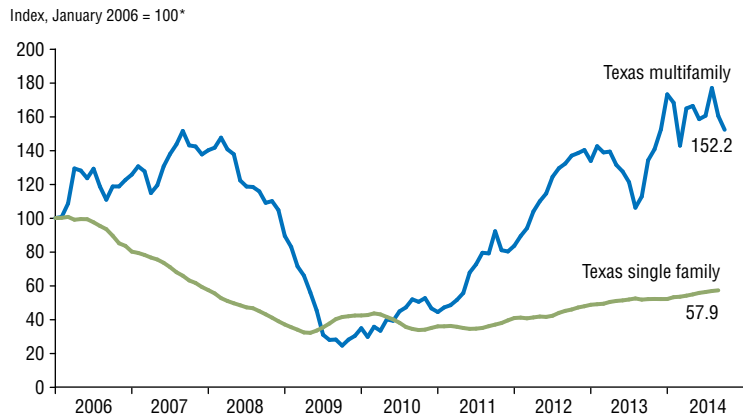
Vacancy rates continued edging lower in third quarter 2014 in major metropolitan areas even as new apartments came to market.¹² The expanding Texas economy and tight credit conditions that deter would-be homebuyers from making a purchase are further boosting apartment demand.

Data from apartment market analyst MPF Research confirm the strong leasing fundamentals in Texas. In third quarter 2014, occupancy of rental units in Dallas and Houston was tight at 95 percent—a 13-year high for both markets. Occupancy in Austin was even higher, at 95.7 percent, while San Antonio, at 93.6 percent, wasn’t far behind. Austin, Fort Worth and Houston ranked among the top 20 U.S. markets in terms of year-over-year rent increases in the third quarter.

Outlook: Moderate Growth

Despite sound economic fundamentals—including a booming Texas economy, high in-migration and rising incomes—growth in home sales and single-family construction activity has been modest in 2014. Entry-level buyers have been left out of the market amid rapidly rising prices and credit constraints. Thus, improved access to credit

Chart 5 Multifamily Construction Leads Residential Recovery

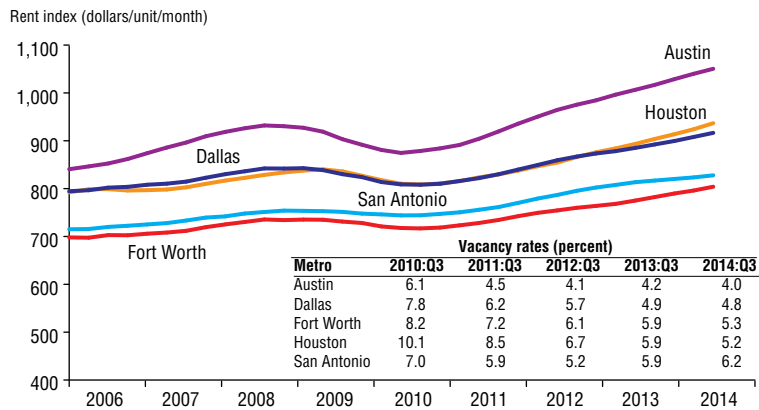


*Five-month moving average of building permits.

NOTE: Last data point is October.

SOURCE: Census Bureau.

Chart 6 Apartment Market Fundamentals Strong in Texas Metros



NOTE: Data are for third quarter 2014.

SOURCE: CBRE Econometric Advisors.

and an expanding supply of new homes for first-time and lower-income buyers are essential for the state’s housing market to strengthen in the coming year.

Some builders are expanding their offerings aimed at the entry-level buyer. Moreover, of the anticipated easing of mortgage-lending rules should spur modest housing demand growth in 2015. Headwinds include rising mortgage rates that could damp sales activity.

On the multifamily side, brisk construction activity is beginning to moderate and will likely slow further. Occupancy levels and rent growth will

cool as units under construction are completed. However, continued healthy economic and population expansion and diminished housing affordability combined with a steadily declining Texas homeownership rate should continue to generate a strong appetite for apartments. That will keep both occupancy and rents at or above the long-run average through 2015.

Assanie is a business economist in the Research Department of the Federal Reserve Bank of Dallas.

(Continued on back page)

A Conversation with Mark G. Dotzour

Bankers Reengage in Housing as Purchasers Confront Budget-Busting Prices

Mark G. Dotzour is chief economist and director of research at the Real Estate Center at Texas A&M University. Dotzour, an observer of residential and commercial real estate trends, discusses why Texas home prices are hitting new highs, the prospects for new construction and housing's overall impact on the Texas economy.

Q. Single-family home prices are rising very quickly in Texas, while new construction appears restrained. What accounts for this?

Homebuilding in Texas, which abated during the Great Recession, is rebounding as homebuyers become more optimistic. Still, new home construction is unable to keep up with demand. Consequently, there are not enough homes for sale. There is also a shortage of single-family lots in desirable locations in pockets across Texas. As a consequence, lot prices are increasing dramatically. This causes the price of new homes to rise as well. Finding a new home under \$200,000 is getting difficult.

That said, research at the Real Estate Center has shown that only one variable is consistently useful explaining home price appreciation in Texas—months' supply of inventory available for sale. We found that the Texas residential real estate market is in equilibrium when there is a 6.5-month supply of homes for sale. In the past, when the market was balanced near that equilibrium, home prices increased at a moderate pace.

The months' supply of new homes across all of Texas has been below 6.5 months since November 2011. In January 2014, the months' supply hit a historic low of 3.3 months. Statewide, the inventory has been below four months since September 2013. The supply situation of single-family homes available for sale has never been this low for this long.

Q. Even with the state's population growth, how great is the risk of overbuilding once things turn around? How does the Texas market differ from others?

Texas has a history of being able to outbuild even the strongest demand trends. However, this is not the case today. Low inventories result in higher prices as buyers feverishly compete to purchase a home they want. It is not uncommon for a house to draw multiple offers and ultimately to sell for a price higher than the listing price. Single-family home prices have increased 25 percent in just the past four years. The median price of houses sold in Texas was \$191,700 in July 2014, up from \$179,400 a year earlier. In July 2010, it was \$154,400.

When the national housing market was red hot in 2005–07 and prices increased at double-digit rates in California, Arizona and Florida, prices in Texas rose only 2 to 4 percent. I would get many phone calls asking what was wrong with the Texas housing market. The fact is that there was nothing wrong with the Texas market. Low price appreciation was the result of a high inventory of homes for sale. At that time, thousands of homes were being built and our inventories stayed high.

Q. You've said that it's difficult for developers to get the money to turn raw land into buildable parcels.

What do bankers tell you is behind their reluctance to lend?

There are several reasons new-home construction has not increased sufficiently to meet demand. Homebuilders and land developers have historically relied heavily on banks for acquisition, development and construction loans to finance their operations. These funds became very scarce in 2009–11.

In 2014, the situation changed; homebuilders tell me that they can get construction loans again. Money, however, remains scarce for land developers.

Banks across America lost a lot of money from land development loans that went bad in the Great Recession, so they have been reluctant to reengage in this sector. New international banking oversight regulations—the so-called Basel III rules—have yielded a new name for these loans: “high-volatility commercial real estate exposure.” Banks that make these loans must have significant capital set aside as a backstop to possible losses. There are exemptions for loans for multifamily development, so it is becoming easier to get loans for new apartments. It isn't so easy for developers to get funding for new subdivisions.

The value of loans outstanding for acquisition, development and construction has declined substantially, Federal Deposit Insurance Corp. data show. At the onset of the recession and real estate collapse, there were \$631.8 billion of such loans nationally. The total fell to \$206 billion by third quarter 2008 at the height of the recession. Just in the past 12 months, such lending has begun to expand again. In third quarter 2014, loans increased to more than \$230 billion.

So the trend is positive, but total credit outstanding to builders and developers is still less than half of what we had before the downturn.

Q. Are there other ways to finance homebuilding-related activities?

As with any other marketplace, there is supply and demand for money; people with money will find a way to get it to people who have a use for it. In recent years, due to the dearth of bank debt financing available for single-



family lot development, publicly traded homebuilders have become big players in land development in Texas and across the country. They get their funding from the sale of common and preferred stock and the corporate bond market. They have a distinct competitive advantage over smaller builders and developers that don't have access to Wall Street debt and equity funding.

Q. Are labor shortages a problem and, if so, are wages rising in response to worker scarcity? Is it contributing to the rising cost of finished units?

Builders face other problems in addition to funding. A serious labor shortage is plaguing the Texas homebuilding industry. When the housing market crashed in 2008, many construction workers returned to their home countries. Others in recent years have gained employment in the energy industry. Consequently, there just aren't enough workers to support higher levels of new-home construction.

It's hard for homebuilders to keep job-site superintendents as well. I've heard numerous stories of competing builders going to a competitor's job site and luring away the superintendent with higher wages and a signing bonus.

Wages in the new-home supply chain are rising. I know of one firm that raised wages nearly \$2 per hour and is now offering "a quarter for each quarter"—a 25-cent-per-hour wage increase, in addition to higher pay, for each three months that an employee stays with the company. The supply chain in the homebuilding industry in

▶ *Banks across America lost a lot of money from land development loans that went bad in the Great Recession, so they have been reluctant to reengage in this sector.*

Texas is still in a rebuilding phase, and it could take years before there are sufficient workers to meet demand. Home prices in Texas will continue their upward spiral until more supply can come online. This will not happen overnight.

Q. Assuming supply-side issues are resolved and there are more homes on the market, do you have any concerns regarding the demand for housing?

The demand for single-family homes has been increasing since 2011. Buyer psychology changed dramatically, which was evident when the *Wall Street Journal* reported in October 2012 that home prices in once-depressed Phoenix rose 18.8 percent from a year earlier. Continued reports of price appreciation since then have rekindled enthusiasm for homeownership.

The upswing in price appreciation is not uniform across the country. In states that allow nonjudicial foreclosure, the overhang of troubled homes was cleared efficiently and quickly, causing prices to turn up almost immediately. Conversely, states that require judicial foreclosure have been slow to clear. In those states, buyers are still concerned about the shadow inventory of troubled homes that will ultimately have to be sold.

But the fundamental reasons people want to buy or sell a home are not impacted permanently by recessions or credit crises. When people get married, have a child, have a second child, get a promotion, get a divorce, retire, lose a spouse or live next to an annoying dog, they want to move. The Great Recession caused a lot of people to postpone making a move. This pent-up demand has overwhelmed existing supply.

There has been some question about whether the millennial generation [today's young adults] will ever want to buy homes. There is speculation that they will want to live in urban locations and be permanent renters. I personally

don't agree. I think these young people have responded to the recession by postponing decisions just like everyone else. Some have postponed moving out of their parents' house. Others have postponed getting married, and some have postponed having children. As these younger people get married and have children, I expect their buying behavior will look a lot like previous generations.

Q. Higher house prices should be good for Texas homeowners. Do you see any downside to the rapid appreciation experienced here?

Rapidly increasing home prices are fun for existing homeowners. It's great to watch the equity in your home increase each year. And we know that when people feel richer, they are more likely to buy things and create jobs. However, there is a downside.

Everyone knows Texas is a great place to do business. Texas businesses compete successfully in the global economy. Part of the reason for their success is that our cost of living has been reasonable and the price of our houses is moderate as well. The lower cost of living allows companies in Texas to hire workers at lower salaries than employers in other parts of our country. By keeping costs low, Texas companies can successfully compete in the global market. But that calculus could change if the price of homes in Texas continues to increase rapidly for several years. If they get too expensive, employers will have to increase pay to make up for the higher costs of living, which will make them less competitive.

I feel that this is one of Texas' most pressing economic development issues. We need to build more homes to keep the supply high enough to prevent prices from getting so expensive that new workers choose not to relocate to Texas. We are nowhere near that level of construction today.

Producers, Refiners View Strategies to Trim Texas' Glut of Ultralight Condensate Oil

By Jesse Thompson

ABSTRACT: Hampered by the federal oil export ban, producers are seeking alternative means to bring to global markets the burgeoning supplies of ultralight condensate oil drawn from the Eagle Ford Shale region of South Texas.

The shale revolution has vastly boosted supplies of the ultralight crude oil known as condensate, particularly in the Eagle Ford Shale region of South Texas.

Condensate is used to produce a variety of products, often by combining it with heavier types of oil. Supplies have overwhelmed U.S. firms' capacity to put the condensate to use.

A U.S. ban on oil exports—including condensates—largely prevents the sale of condensate to foreign companies. Drilling companies, refiners and petrochemical producers have employed various ways to deal with the condensate surplus, with some producers skirting the export ban. Regulators have taken notice, too, allowing limited condensate exports by two firms.

Still, much uncertainty remains in the marketplace over what form exports of condensate will take.

Defining Condensate

Condensate is an ill-defined family of substances, often referred to as ultralight crude due to its low density.¹ Heat and pressure underground keep the substances gaseous, but when they come out of the well, they condense into a liquid, much like water on the outside of a cold drinking glass.

The American Petroleum Institute uses an index to indicate how dense various oils are relative to water—called API gravity: The higher the API, the lighter the oil. Generally, condensate API gravity exceeds 50. By comparison, West Texas Intermediate crude oil has an API of 39, while heavier crudes such as Canadian oil can have an API of 25 or lower. Condensates occupy the border between what are usually referred to as natural gas liquids (NGLs), such as ethane and propane, and crude oil.

Increasing Supplies

The Eagle Ford Shale accounted for 1 percent of the nation's oil production in 2008; the share rose to more than 17 percent by mid-2014. One-sixth of new barrels produced between 2009 and 2013 were an ultralight type called lease-condensate, according to the most recent data from the Energy Information Agency (EIA).² Over that period, Texas was responsible for 72 percent of U.S. condensate production growth.

The Eagle Ford produced 83 million barrels of condensate—27 percent of the U.S. supply and 52 percent of the Texas supply—in 2013. The sudden glut of ultralight liquids, which sell at a discount, drove South Texas producers to focus their drilling efforts on areas rich with heavier oils (*Chart 1*).

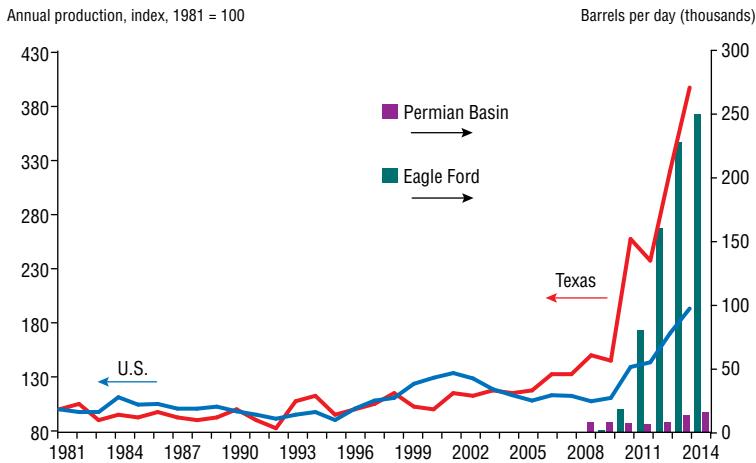
Thus, while oil production growth in the Eagle Ford remains healthy, condensate growth has fallen off, from 70 percent of total Eagle Ford oil production in 2009 to 20 percent in the first half of 2014. With such an unexpectedly rich resource of condensate, producers are seeking any route they can find to deliver it to customers.

A primary use for condensate is as a diluent. Heavy crude producers want to sell their product to refiners for processing but often need to dilute their oil with something lighter for transport and delivery. A barrel of heavy crude with a low API can be blended with condensate that has a high API to create oil with a gravity somewhere in between.

Refiners convert the diluted barrel into a variety of products. Some of the condensate that goes into a barrel of oil comes through the refining process little changed and is shipped back to heavy crude producers to repeat the process. This creates a loop in which the value of the condensate is based largely on the needs of heavy crude producers, as much

Chart
1

Texas' Eagle Ford Drives Condensate Production



NOTE: Permian Basin and Eagle Ford production for 2014 is based on January–September data.
SOURCES: Energy Information Agency; Texas Railroad Commission.

▶ New refinery units along the Gulf Coast and higher operating rates at refineries on the East and West coasts will increase the amount of ultralight crude the U.S. can process. Still, the capacity in many parts of the U.S. is near its limit.

as the products derived from condensate itself. U.S. heavy crude production isn't growing, according to EIA estimates, but as long as that loop between heavy crude producers and refineries is expanding globally, international demand for diluent will grow with it.

Condensate is also used in petrochemical plants. Many use condensate to make the chemical building blocks for products such as plastics or car tires. Foreign petrochemical manufacturers dependent on naphtha—a mix of substances resembling condensate that usually comes from refineries—could be major buyers of U.S. condensate as they seek to lower their costs to compete with U.S. companies whose production is based on low-cost domestic ethane, an NGL.³

In the refinery, condensate is also split or processed into several different products. Some goes directly into diesel and jet fuel, some is blended into gasoline and some becomes solvents for industrial applications.

Even with many petrochemical and refinery uses, there are limits to how much condensate the U.S. can process.

Depressed Crude Wellhead Prices

The operating rates of U.S. refineries have climbed since the end of the recession to as high as 90 percent in 2013 and 95 percent in 2014. Along the Gulf

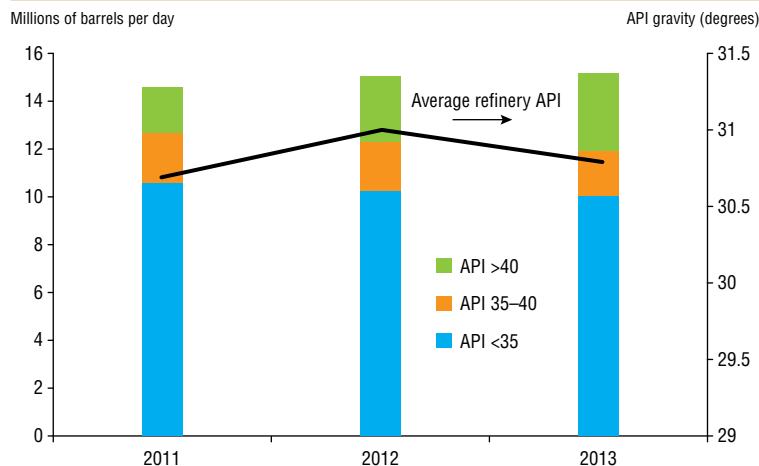
Coast and in the Midwest, the share of total operable refining capacity in use has frequently exceeded 90 percent the past two years. However, those plants have limited capacity to refine ultralight crudes. Particularly along the Gulf Coast, home to almost half of U.S. refining capacity, operators for most of the past 30 years invested in technologies to process greater volumes of heavier crudes.

From 1986 to 2008, the API gravity of oils entering Gulf Coast refineries steadily declined from 35 to 27.8. It nearly recovered to 30 by early 2013 before falling again through the year. New refinery units along the Gulf Coast and higher operating rates at refineries on the East and West coasts will increase the amount of ultralight crude the U.S. can process over the next several years. Still, the capacity in many parts of the U.S. is near its limit. In those facilities, processing too light a mix would diminish profitability because of inefficient refinery use or sale of a suboptimal product mix (Chart 2).

Oils with an API gravity of 40 or more (light crudes and condensate) account for almost all U.S. crude production growth, EIA analysis shows. Thus, imports of similar crudes have fallen to zero, practically eliminating shipments from Nigeria and other light crude producers. Imports of heavy crudes with an API of 25 degrees or less have declined somewhat but are little changed as a

► Many analysts believe it's inevitable that ultralight inventories will continue to rise as long as the export ban remains. The trapped and growing inventories could lower domestic light crude prices relative to their global counterparts.

Chart 2 | Refinery Mix Gets Heavier as Crude Supply Gets Lighter



NOTE: Domestic supply calculated as domestic production plus imports.

SOURCES: Energy Information Administration; DrillingInfo; Colorado Department of Natural Resources; Texas Railroad Commission; author's calculations.

share of refinery input. Heavy crude imports are down from nearly 24 percent of all oil that went into U.S. refineries in mid-2009 to 21.4 percent in late 2013.

Many analysts believe it's inevitable that ultralight inventories will continue to rise as long as the export ban remains. The trapped and growing inventories could reduce domestic light crude prices relative to their global counterparts. A further lowering of the price producers receive at the wellhead would discourage drilling in condensate-rich areas. However, there is a way around the export ban.

Export Regulatory Uncertainty

Crude oil cannot be exported, but refined products can.⁴ Investing in a “splitter” is one way around the ban. Splitters cut the condensate into lighter and heavier parts that then qualify as “refined” products under the law. Split-condensate can be consumed or exported as light and heavy naphthas, diesel, kerosene and gas oil. Hundreds of millions of investment dollars have been committed to this export strategy (*Table 1*).⁵

For example, Kinder Morgan Energy Partners is building a \$360 million complex on the Houston Ship Channel expressly to store, split and export products derived from Eagle Ford condensate at a rate of 100,000 barrels per day, with

room to grow. The facility is scheduled to become fully operational in second quarter 2015.

Even as planned projects make their way through engineering, permitting and construction, the rules governing condensate may be shifting. The Department of Commerce's Bureau of Industry and Security issued a judgment in June allowing Pioneer Natural Resources and Enterprise Product Partners to export condensate.⁶ The action didn't overturn the export ban, nor was it a finding that condensate differs from crude oil under the law. It stated that a stabilization process the two companies employed (in which NGLs and natural gas are removed) was sufficient to legally qualify the material they produced as refined. The resulting product is not subject to the export ban.

Indeed, some firms have taken it upon themselves to export stabilized condensate from Texas without an export permit, both testing regulators' will to enforce the ban and perhaps forcing a clarification of the rules.⁷

Following that reasoning, many firms may rethink the need for a splitter, while still others continue to review the decision, hoping to better understand what exports of condensate might look like in the near future. The resulting uncertainty may defer some planned Gulf Coast splitter projects.

Plant-Condensate Exports

A chemically close substitute for condensate—plant condensate, also known as pentanes plus, which comes from natural gas—provides some clues regarding the potential impact of increased condensate processing. Rather than being composed of the lightest parts of oil, like condensate, pentanes plus is made of the heaviest parts of unprocessed natural gas.

Pentanes plus has never been considered crude and has never been subject to the export ban. It is liquid and has roughly the same potential uses as condensate. Net exports of pentanes plus are a dramatic example of what the shale revolution has done for the U.S. energy trade balance. After decades of being an importer of this fuel, the United States is now a net exporter, principally to Canada (Chart 3).

The U.S. exported 50 million of the 127 million barrels of pentanes plus produced in gas plants in 2013 (40 percent) and 32 million of the 78 million barrels produced in the first half of 2014 (42 percent).

The Eagle Ford, which produced 83 million barrels of condensate in 2013, is on track for 91 million barrels in 2014. Adding only Eagle Ford condensate production to total pentanes plus output would result in a nearly two-thirds increase in the volume of exportable U.S. energy products in 2014.

Future Determination

The condensate supply glut has led to swollen inventories, strained refinery capacity, and likely diminished drilling in some parts of the country. Producers continue to face uncertainty while the export ban remains in place. But some combination of reduced light crude production (due to lower prices), increased refinery capacity and efforts to skirt the ban should ultimately alleviate the glut.

Producers in the Eagle Ford Shale, as in other regions, have been attempting to direct condensates to other uses and shift production to heavier oils as they await better pricing and word on whether the U.S. will liberalize or eliminate the oil export ban.

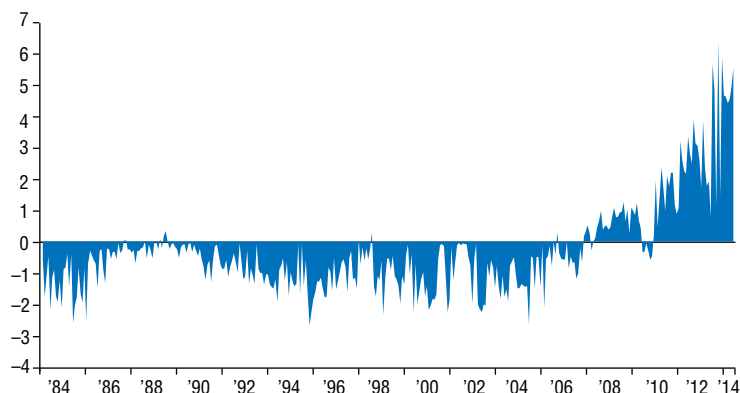
Table 1 Proposed and Existing Condensate Splitter Projects in Texas

Company	Startup date	Capacity (millions of barrels/day)	Estimated capacity (millions of barrels/day)	Location
BASF and Total Petrochem	2000	75	75	Port Arthur
Kinder Morgan Energy Partners—Phase 1	2014:Q4	50	50	Houston
Kinder Morgan Energy Partners—Phase 2	2015:Q2	50	50	Houston
Trafigura	2015	50	50	Corpus Christi
Martin Midstream	2016:Q1 & Q2	Up to 100	100	Corpus Christi
Castleton Commodities	TBD	TBD	75	Corpus Christi
Magellan Midstream	TBD	TBD	100	Corpus Christi

SOURCE: Turner, Mason and Co.

Chart 3 Exports of Natural-Gas-Derived Pentanes Plus Soar

U.S. net exports (millions of barrels)



SOURCE: Energy Information Agency.

Regardless of what form new export rules may take, the Eagle Ford continues to expand the list of energy products exported from the Texas Gulf Coast.

Thompson is a business economist at the Houston branch of the Federal Reserve Bank of Dallas.

Notes

¹ See "Fifty Shades of Condensates—Which One Did You Mean?" by Rusty Brazier, RBN Energy LLC, Oct. 22, 2012, <https://rbnenergy.com/fifty-shades-of-condensates%E2%80%93which-one-did-you-mean>.

² For simplicity, lease-condensate is referred to subsequently as "condensate."

³ See "Booming Shale Gas Production Drives Texas Petrochemical Surge," by Jesse Thompson, Federal Reserve

Bank of Dallas *Southwest Economy*, Fourth Quarter, 2012, and "Shale Revolution Feeds Petrochemical Profits as Production Adapts," by Jesse Thompson, Federal Reserve Bank of Dallas *Southwest Economy*, Fourth Quarter, 2013.

⁴ See "Crude Oil Export Ban Benefits Some . . . but Not All," by Michael D. Plante, Federal Reserve Bank of Dallas *Economic Letter*, vol. 9, no. 7, 2014.

⁵ See "To Split or Not to Split—That Is the Question," by Ryan Couture, Turner, Mason and Co., Sept. 8, 2014, www.turnermason.com/blog/2014/09/08/to-split-or-not-to-split.

⁶ See "With or Without Splitting? Changing Lease Condensate Export Definitions," by Sandy Fielden, RBN Energy LLC, June 25, 2014, <https://rbnenergy.com/with-or-without-splitting-changing-lease-condensate-export-definitions>.

⁷ See "BHP Billiton to Export Condensate Overseas," by Jennifer A. Dlouhy, *Fuel Fix*, Nov. 4, 2014, <http://fuelfix.com/blog/2014/11/04/bhp-billiton-to-export-condensate-overseas>.



INCOME: Texas Median Rises 1 Percent, Outpacing National Growth

Texas’ real median household income rose 1 percent in 2013 to \$51,704, according to the Census Bureau’s American Community Survey. Median income for the nation increased slightly, to \$52,250, but grew at a slower 0.6 percent rate.

Income gains in Texas contributed to a 0.4 percentage-point decline in the poverty rate to 17.5 percent in 2013. The national poverty rate was essentially unchanged at 15.8 percent. Texas was one of only four states to record a statistically significant poverty rate reduction between 2012 and 2013.

Educational attainment in Texas also improved. Nearly 82 percent of Texans over age 25 had a high school degree in 2013, up 0.5 percentage points from 2012, and the share of the population with a bachelor’s degree or higher jumped 0.8 percentage points to 27.5 percent, still below the national average of 29.6 percent.

Although Texas’ educational attainment, income and poverty were better, its income inequality worsened. The Gini index, a measure of income disparity, rose in 2013. However, the national index has climbed at a slightly faster pace in recent years, improving Texas’ relative standing. Income inequality in Texas, as measured by the index, now equals that of the nation.

—Kristin Shepard



AGRICULTURE: Texas Cattle Producers Likely to Report Record Profit

The Texas livestock sector, which accounts for more than 70 percent of state agricultural production, anticipates record profits this year despite lingering drought conditions. Cattle prices continue climbing, while input costs—such as corn used for feed—are falling, according to the U.S. Department of Agriculture (USDA).

An expected bumper corn crop in the U.S. is driving down feed prices, while tight cattle inventories are pressuring beef prices amid strong domestic and international demand. With agriculture and related economic activities accounting for around 10 percent of state gross domestic product, according to the Texas A&M AgriLife Extension Service, the Texas economy stands to benefit.

An easing drought, reported by bankers statewide in the Dallas Fed’s third-quarter *Agricultural Survey*, is also aiding cattle ranchers. With strength in the livestock sector and in cotton—the state’s No. 1 crop—Texas won’t reflect a projected U.S. farm income decline. Cash receipts are forecast to increase 10 percent for livestock and 15 percent for cotton in Texas this year. Nationally, net farm income is expected to decline 14 percent in 2014 from 2013 amid rising expenses and a 15 percent drop in direct government payments, according to the USDA.

—Sarah Bindner



HEALTH CARE: Medicaid Surge Along Border Signals Spending Rise

Medicaid enrollments in South Texas border counties rose 6 percent in the first eight months of 2014, a particularly large increase given that one-quarter of the region’s population was already in the program. Statewide, 13 percent of residents are in the low-income health care plan. The added government health care funding along the border should bolster employment of health aides.

Nearly 10 percent of South Texas border workers are employed in the home health care industry, compared with 2.2 percent statewide. In the 1990s, the shares were about the same in the two regions. The expansion likely reflects high rates of border poverty and chronic disease, along with low accessibility to preventive care and other factors.

Higher public sector spending has largely paid for the expansion—government transfer payments for medical benefits in the region grew at an inflation-adjusted rate of 8.5 percent annually between 2000 and 2010. Federal budget cuts beginning in 2012 abruptly halted spending growth, straining home health care agencies that rely on government reimbursements. As a result, home health care job growth slowed.

—Christopher Slijk

NAFTA at 20: Shortcomings Suggest Trade Agreement Alone Isn't Enough

By Pia Orrenius and Jesus Cañas

The North American Free Trade Agreement (NAFTA), binding Canada, Mexico and the United States, turned 20 this year. Its objectives were clear: to increase trade and investment by eliminating tariffs, remove nontariff barriers, facilitate cross-border movement and provide a framework for dispute resolution.

The results have been impressive. Mexico–U.S. trade—exports plus imports—has grown 286 percent in inflation-adjusted terms since implementation, Jan. 1, 1994. U.S. exports to Mexico reached \$226 billion in 2013, up from \$67 billion in 1993, and imports from Mexico climbed to \$281 billion, up 336 percent. U.S. trade with Canada is larger in volume than trade with Mexico but grew more slowly, with exports to Canada and imports from Canada rising about 85 percent in real (inflation-adjusted) terms from 1993 to 2013.

NAFTA foreign direct investment (FDI) grew even more. U.S. FDI in Mexico averaged \$1.5 billion per year before the agreement and \$8.3 billion after implementation.¹

Major U.S. corporations have a large presence in Mexico in most sectors, including manufacturing, banking and retail. U.S. FDI in Canada similarly vaulted from an average \$4.2 billion before NAFTA to \$19.6 billion post-NAFTA.

Meanwhile, Mexico and Canada FDI in the U.S. rose more than fourfold in the post-NAFTA period. Well-known Mexican companies that have entered the U.S. market include food giants keen on the growing Hispanic food market, such as Grupo Bimbo (which bought Texas-based Mrs Baird's Bakeries), Grupo Herdez and Gruma.

NAFTA's successes based on its stated objectives have been the most far-reaching for Mexico, particularly in the manufacturing sector. The country supplies a variety of consumer goods such as televisions and top-of-the-line

refrigerators. Mexico is a world-class producer of automobiles and auto parts; every major global car company operates a production facility there. Mexico is the top auto parts supplier to the U.S. and ranks second after Canada in auto vehicle exports to the U.S.

Mexico's Living Standards

Despite such successes, some say that NAFTA has failed, given broader data on Mexican living standards. There has been no overall convergence between Mexico and its NAFTA partners. The per capita income gap between Mexico and the U.S. in 2012 remained as large as it was in 1994—about 70 percent in purchasing-power-adjusted terms (*Chart*).

Mexico has made giant strides in the last two decades in macroeconomic stability, fiscal discipline and openness to trade. But external shocks and domestic structural problems continue to blunt progress.

Even as NAFTA took effect, the financial and banking sector collapse known as the Tequila Crisis rocked the

Mexican economy in 1994. Domestic credit markets still have not recovered. Private sector credit amounted to a paltry 28 percent of gross domestic product in 2013, compared with 69 percent in Brazil and 73 percent in Chile. More shocks followed: China's entry into the World Trade Organization in 2000 created new competition and led to manufacturing job losses. Since then, Mexico has contended with drug-related violence, declining oil production and two U.S. recessions.

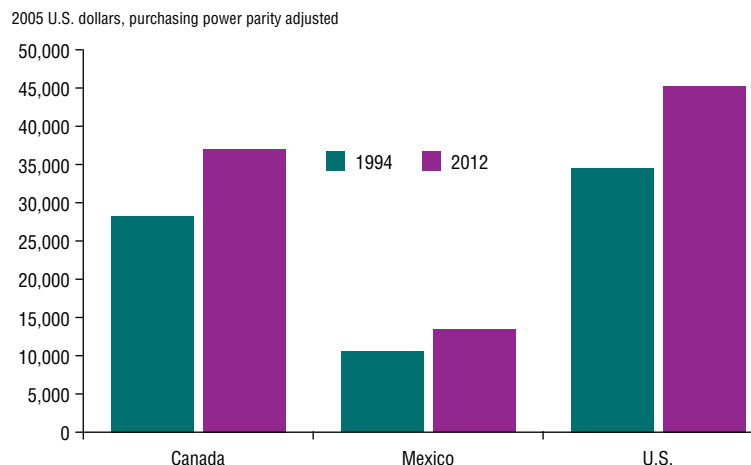
NAFTA successfully changed the tradables sector in Mexico. Other sectors have lagged. Promising reforms taking root in Mexico would similarly alter the nontradables (service) sector as well as the energy industry, opening them up to further competition and investment, which would in turn raise productivity and innovation.

After 20 years, it's likely that the problem has not been too much NAFTA, but rather too little.

Note

¹ The pre-NAFTA period spans 1982–93; the post-NAFTA period is 1994–2013.

North American Trading Partners Still Unequal
(Gross domestic product per capita)



SOURCE: Organization for Economic Cooperation and Development.

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Single-Family Housing Squeeze Eases in Texas; Multifamily Soars

(Continued from page 7)

Notes

¹ Data are from the Federal Housing Finance Agency (FHFA) purchase-only home price index, four-quarter percent change; for example, the change in home prices between fourth quarter 2003 and fourth quarter 2004.

² Between March 2007 and May 2009, the S&P/Case-Shiller Home Price Index for the U.S. fell 31.1 percent, while prices in Dallas (a proxy for Texas) declined 7.5 percent.

³ FHFA purchase-only home price index four-quarter percent change.

⁴ Texas ranked third in 2012 and sixth in 2013 among the states in job growth. Texas also ranked No. 1 for domestic in-migration for the eighth consecutive year in 2013, according to Census Bureau population estimates.

⁵ Texas' major metropolitan areas are Austin, Dallas, Fort Worth, Houston and San Antonio.

⁶ Mortgage rates rose nearly 1 percentage point—from 3.35 percent in early May to 4.29 in early July 2013. Mortgage rates have fallen slightly since then. Data are from the Freddie Mac Primary Mortgage Market Survey.

⁷ Data are from Metrostudy, which estimates that 20 to 24 months of lot supply is equilibrium for Texas' major metro housing markets.

⁸ In third quarter 2014, the net percentage of respondents indicating tightening standards for construction and land development loans was minus 9.6, suggesting that 9.6 percent more loan officers are easing standards compared with those tightening credit.

⁹ The Housing Opportunity Index is produced by the National Association of Home Builders and Wells Fargo. The index measures the percentage of homes sold that are affordable to the median-income family based on standard mortgage underwriting criteria.

¹⁰ All data are third-quarter figures for 2009 and 2014. Starts data are from Metrostudy and are annualized.

¹¹ Data on multifamily units under construction are from MPF Research.

¹² Data are from CBRE Econometric Advisors' Multifamily Housing Quarterly Outlook History and Forecast, third quarter 2014.

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