

THE TEXXELL MINI-CASE

Instructions

Review the case background and the project descriptions that follow. There are four (4) projects identified. All students/teams must conduct the analysis required for Project A. Of the remaining three projects (B, C, D), pick one project and prepare a brief summary of your conclusions and recommendations to Texxell. Be prepared to summarize or present your analysis and results in class.

Case Background and Summary

Overview of Texxell

Texxell is one of the largest petrochemical companies in the world with upstream and downstream business units. Upstream business units are focused on exploration and extraction of crude oil and natural gas. Downstream business units turn crude oil into a range of refined products that are divided into three operating units including Chemicals, Lubricants, and Gasoline.

The Gasoline Operating Unit

Under its domestic gasoline operating unit, Texxell refines crude oil into gasoline at one of its seven refineries located throughout the United States. Integrated petroleum companies like Texxell with upstream and downstream business units transport refined gasoline through pipelines to distribution terminals known as “racks.”

Once the refined gasoline is at the rack, additional chemicals – called additives – are mixed with the gasoline to meet certain regulatory requirements. “Base additives” are often required by government regulations and can change seasonally and may vary across states. In addition to base additives, some companies add proprietary formulations – called “branded additives” – to improve the performance characteristics of the gasoline. Branded additives are the result of extensive research and development programs by gasoline marketers like Texxell and are designed to add brand value through improved characteristics and product differentiation.

Unbranded gasoline – typically with only base additives – is sold at the rack to independent fuel transporters known as “jobbers.” Jobbers then deliver the unbranded gasoline to various retailers including Murphy Oil (Walmart/Sam’s Club), H.E.B., and RaceTrac.

Branded gasoline – including branded additives – is also sold at the rack, often under fixed contract terms to “dealer tank wagons” (“DTW’s”) that deliver the branded gasoline to retail locations. There are also occasions when independent jobbers transport branded gasoline to branded retail stations, for example when branded retail locations are somewhat isolated or in a region with minimal brand presence.

While several branded gasoline marketers own retail stations, all of Texxell’s domestic retail stations are independently owned and operated. DTW’s and jobbers deliver Texxell branded gasoline with its proprietary additives to independently owned Texxell stations that have the right to use the Texxell brand and trademarks and agree to pay a royalty to Texxell in return.

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Texxell's Wholesale Gasoline Pricing Strategy

Texxell advises its independent operators on a wide variety of matters, including sanitation practices, convenience store product lines, signage, employee practices, and gasoline pricing strategy. Although Texxell does not set retail prices at its independent retail locations, Texxell influences the premium consumers pay for its gasoline through two mechanisms: i) by charging its retailers higher prices for wholesale gasoline (higher rack prices), and ii) by advising independent retailers of consumers' willingness to pay a premium for the product. Texxell uses both mechanisms, but is not sure whether the independent retailers are heeding its premium suggestions that result from the extensive marketing research it conducts.

Texxell has long been advised by its internal marketing department and by independent consultants that consumers consider Texxell brand gasoline to be a superior product to unbranded gasoline. Texxell invests significant funds in research, development, and marketing to grow the value of its brand. The economic returns to the brand value are generated through increased market share (higher volume sales) and through Texxell's ability to charge a price premium (whether at the rack or at the pump).

Most retailers carry three grades of gasoline – regular, mid-grade or plus, and premium. The “premium grade” fuel category is a growing market attributed in large part to an increase in the share of high-performance vehicles requiring higher octane gasoline. Texxell has long been one of the leading sellers of premium grade gasoline with its TexPower® product. One of Texxell's major competitors has significantly increased its marketing presence in the premium grade category and appears to have diversified its wholesale pricing strategy over the past few years.

The Current Study

Texxell has reason to believe that it is not adequately capturing value with respect to its TexPower® premium grade product line and is interested in conducting various quantitative analyses that will be used to develop and improve its pricing and marketing strategies for key market areas in four states: California, Illinois, New York, and Texas.

[Project A - Required] Texxell would like to know how wholesale prices of TexPower® compare to competing premium grade products.

- Conduct series of summary statistics/graphs regarding Texxell price differentials vs. competitor prices
- Example: Average TexPower® price premium (discount) across geographies/time.
- Example: Scatterplot of TexPower® volume sales and TexPower® price premia by State

[Project B] Texxell also has reason to believe that it is not effectively setting wholesale prices of TexPower® competitively during weekends and during periods of peak consumer demand. Conduct a comparative analysis of Texxell's weekend pricing to competitor weekend pricing behavior. Propose a new weekend pricing strategy to Texxell based on statistical analysis.

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- Determine whether TexPower® prices are higher or lower on weekends and compare to how “Other” and “Branded” retailers price their premium gasoline products on weekends.
- Example: Regress TexPower® prices on a weekend indicator (dummy) variable. Conduct similar regressions for “Other” and “Branded” premium grade prices and compare to TexPower®.
- Note: Consider additional causes for variation in wholesale prices including seasonal variation, day-of-week travel patterns, geographies, or other macroeconomic factors.

[Project C] Texxell’s marketing budget is currently allocated equally throughout the year. Texxell is interested in better aligning marketing expenditures with consumer travel patterns to focus on driving share during peak demand seasons. Identify opportunities for more effective allocation of marketing resources throughout the year and propose a marketing allocation strategy to Texxell.

- Determine whether Texxell sells more TexPower® in certain months and provide a recommendation on how to more effectively allocate an annual marketing budget of \$65 million.
- Example: Regress TexPower® volume (units) on a monthly or seasonal indicator (dummy) variable.
- Note: Consider potential variations across time, geographies, while possibly controlling for other factors affecting price.

[Project D] The Texxell marketing department is considering providing consumers with additional incentives during period of high gasoline prices. With recent spikes in retail gasoline prices, Texxell is interested in determining whether consumer’s purchasing decisions change when wholesale gasoline prices climb above \$4/gallon. Texxell would also like to know whether or not the consumer behavior varies across geographic regions.

- Determine whether Texxell sells less TexPower® when prices exceed \$4/gallon and, if so, by how much. Advise Texxell on potential marketing strategies to increase consumer demand during peak price periods.
- Example: Regress TexPower® volume on a \$4 Price indicator (dummy) variable.
- Note: Consider potential variations across time, geographies and the possible need to control for other factors affecting consumer demand.

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Glossary:

Terminal or Terminal Rack: A gasoline storage and distribution facility typically owned by a refiner. The terminal owner often enters into supply agreements to provide gasoline to several branded and unbranded retailers from a single terminal based on terminal locations.

Dealer Tank Wagon ("DTW"): A tanker truck owned and operated by an integrated oil refiner that transports branded gasoline to branded retail gasoline stations.

Jobber Tank Wagon: An independent tanker truck operator that purchases branded or unbranded gasoline at the terminal and then transports branded or unbranded gasoline retail gasoline stations.

Rack Price: Wholesale truckload price of gasoline usually set at each terminal based on local market conditions.

Dealer Tank Wagon ("DTW") Price: Wholesale price of gasoline priced usually priced by an integrated oil refiner on a delivered basis to a retail outlet.

Branded Gasoline: Gasoline that will often contain proprietary additives and detergents. Branded retailer contracts allow retailers to associate the brand's trademarks with selling gasoline. Proprietary additives are usually added at the terminal rack to DTW or Jobber tanks for final transport to branded retail stations. Popular branded gasoline retailers include Shell, Chevron, Exxon/Mobil, and BP.

Unbranded Gasoline: Gasoline that does not carry a specific brand name and may not contain proprietary additives and detergents. Often unbranded gasoline retailers focus on the convenience store aspect of retail gasoline sales. Popular unbranded gasoline retailers include Murphy Oil (Walmart and Sam's Club), RaceTrac, QuikTrip, and select 7-11s.

Additives: There are two basis forms of additives to gasoline: standard and proprietary. Some federal and state regulations require various "standard" additives to be included in gasoline. These standard additive requirements often vary by region and season. Proprietary additives include additives and detergents created through the research and development processes conducted by branded gasoline marketers.

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The Data:

- Daily volume for Texxell and daily prices for Texxell and another average price for “competitors.”
- Volumes and prices are provided separately for regular and premium grade products.
- Gasoline prices and Texxell volumes are collected at the zip-code level. All prices are median prices for a given zip-code on a particular day.
- Data covers zip-codes in four geographic areas including Houston, Chicago, New York, and San Francisco).
- Crude oil spot prices are provided for Cushing (West Texas Intermediate or Texas light sweet) and for Brent (North Sea).
- Unemployment data from the Bureau of Labor and Statistics at the zip-code level.
- Various indicator (dummy) variables are provided for year, month, weekend (Friday/Saturday), and for prices over \$4.

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<u>Variable</u>	<u>Description</u>
date	daily date observation
week	week of the year
volume_pre	Texxell premium grade volume sales
volume_reg	Texxell regular grade volume sales
year	year
dow	day of the week
price_reg_texon	Texxell regular grade price (\$/gallon)
price_reg_other	All Other regular grade price (\$/gallon)
price_reg_branded	Branded Competitor regular grade price (\$/gallon)
price_pre_texon	Texxell premium grade price (\$/gallon)
price_pre_other	All Other premium grade price (\$/gallon)
price_pre_branded	Branded Competitor premium grade price (\$/gallon)
cushing	cushing spot crude oil price
brent	brent spot crude oil price
ue_initial_claims	zip-level unemployment data - initial jobless claims
ue_continued_claims	zip-level unemployment data - continued jobless claims
ue_rate	zip-level unemployment data - unemployment rate
zip	zip code
state	state
y2009	annual indicator variables
y2010	
y2011	
m1	monthly indicator variables
m2	
m3	
m4	
m5	
m6	
m7	
m8	
m9	
m10	
m11	
m12	
weekend	indicator - Friday or Saturday
Pdiff_pre_other	Texxell premium grade price minus Other premium grade price
Pdiff_pre_branded	Texxell premium grade price minus Branded premium grade price
Pdiff_reg_other	Texxell regular grade price minus Other regular grade price
Pdiff_reg_branded	Texxell regular grade price minus Branded regular grade price
over4	indicator - Texxell regular grade >\$4/gallon