

Prepared Statement
of
Justine S. Hastings
Vertical Relationships and Competition in
Retail and Wholesale Gasoline Markets

Before the
Committee on Governmental Affairs
Permanent Subcommittee on Investigations
United States Senate

May 2, 2002

Introduction

Mr. Chairman and members of the committee, my name is Justine Hastings. I am an Assistant Professor of Economics at Dartmouth. I have a Ph.D. in Economics from the University of California at Berkeley. My research focuses on the effects of vertical relationships between refiners and retailers on retail and wholesale gasoline prices. I have analyzed extensive data on retail and wholesale gasoline market structure and prices for a diverse group of US metropolitan areas covering the 1990's. I have used this data to conduct independent, academic research into the relationships between vertical market structure and competition in gasoline refining and marketing. Through this research, I have gained a wealth of knowledge about industry structure and its relationship to competition. My independent research and my acquired knowledge of the gasoline industry form the basis of my testimony before this committee.

Today I will summarize the results of two academic studies and discuss their implications for government policy. The first study focuses on the impact of various vertical contracts between refiners and retailers on retail gasoline prices and competition. The second study identifies the relationship between the extent of refiner's vertical integration into retail markets and wholesale gasoline prices. Both analyses use changes in vertical integration generated by mergers to identify the main results. After summarizing my research, I will make policy recommendations, and comment on the validity of several pieces of legislation that attempt to increase competition by regulating vertical contracts between refiners and retailers.

Summary of Research

Summary of *Vertical Relationships and Competition in Retail Markets: Empirical Evidence from Contract Changes in Southern California*¹

Main Result: Independent retailers increase retail competition, significantly lowering local retail prices.

- ❖ ***This paper estimates the effects of (i) fully vertically integrated (company-operated) gasoline stations and (ii) fully independent (unbranded) gasoline stations on retail prices.***

Since the mid-1990's, West Coast cities have experienced substantially higher gasoline prices than other regions of the country. In addition, there has been a significant divergence in average retail prices between West Coast metropolitan areas. For instance, residents in San Diego have paid a consistent five to fifteen cents more per gallon, on average, than Los Angeles residents. These recent price phenomena have sparked intense political debate over the causes of these 'non-competitive' price patterns. Much of this debate has focused on the impact of vertical contracts between refiners and retailers on retail prices. More recently

¹ This section summarizes the results of "Vertical Relationships and Competition in Retail Gasoline Markets Empirical Evidence from Contract Changes in Southern California", by Justine S. Hastings, University of California Energy Institute Working Paper #75.

other regions of the country, such as the Midwest and the North East, have experienced similar price phenomena, moving this debate to the national arena.

- ❖ ***Proponents of Divorcement legislation claim increases in fully vertically integrated stations cause a decrease in market competition and an increase in retail gasoline prices. However, sharp decreases in the market share of independent retailers offer a competing explanation for increasing retail prices.***

On the West Coast, industry trade organizations, politicians, and consumer groups have noted corresponding increases in the number of fully vertically integrated (company-operated) gasoline stations in cities experiencing higher citywide average prices. Because of this correlation, some form of divorcement legislation or ordinance has been proposed in most West Coast states. Divorcement legislation prohibits or restricts the number of stations that a refiner can own and operate directly. Proponents of divorcement argue that a larger market share of company-operated stations lessens competition between refiners and increases their market power since the refiner directly sets the retail price at this type of station.² Divorcement would require the refiner to convert these stations to lessee-dealer stations or open-dealer stations, where a dealer sets the retail price but is required to pay the refiner's wholesale price, under the assumption that this would result in a lower, more "competitive" retail price.

Another argument that has received much less attention claims that recent decreases in the number of independent, unbranded retailers have decreased retail competition, since these stations typically compete on price with little non-price product differentiation. Independent stations are completely independent from the refiner in that the gasoline dealer owns the station, and sells "unbranded" gasoline. The fact that the gasoline is unbranded allows the dealer to purchase the lowest price wholesale gasoline available. They are not under contract to sell any particular brand of gasoline or purchase from any given refiner, but cannot post a refiner's brand name on their station. The unbranded station therefore competes with other stations by offering the lowest price gasoline. When these stations are replaced by branded stations (or exit the market), price competition in the market is softened, resulting in higher prices.

- ❖ ***This research paper determines if either decreases in the market share of independent stations or increases in the market share of company-operated stations cause higher retail prices.***

In order to identify the price effects of (i) company-operated stations and (ii) independent stations this analysis uses an event that caused sharp changes in the market shares of independents and company-operated stations to determine their effects on local retail prices. The "long-term lease" of approximately 260 independent Thrifty gasoline stations by Atlantic Richfield Company (ARCO) provides an opportunity to test both the effects of company operated stations and the effect of independent retailers on local prices.³

The independent Thrifty stations were converted to ARCO stations with various vertical contracts. Some Thrifty stations became company-operated ARCO stations, and some became dealer-run ARCO stations. The Thrifty stations were distributed across Southern California. Hence, some local markets experienced a decrease in the market share of independent competitors, while other local markets did not. In addition,

² Hawaii, Connecticut, Delaware, Maryland, Nevada, Virginia, and District of Columbia have all have divorcement legislation. The legislation in Nevada was passed in 1984 in response to high sustained retail prices following an expansion in the market of company-op gasoline stations. Legislation in East Coast States was passed in the 1970's in response to the Oil Crisis. The goal was to ensure that refiners allocated scarce gasoline to their dealers, instead of selling it only through their company-operated stores. The legislation ranges from prohibiting company-ops to capping their market share, to simply requiring a minimum distance between a company-op and a dealer-run station.

³ Nearly all of the increase in company-op stations in the West Coast over the past five years came from the purchase of two independent chains by integrated refiners: 1) Thrifty by ARCO, which affected Southern California, and 2) Circle K by Tosco, which mainly affected Phoenix and Tucson.³ Therefore, at the citywide level of aggregation, the increase in company-ops and the decrease in independents are perfectly correlated. It is therefore unclear which, if either, of these two factors has had a positive impact on retail prices.

some markets experienced an increase in the market share of company-operated stations, while others experienced an increase in dealer-run stations instead.

These discrete and differential changes in the market share of company-ops and independents allow for a pre-post comparison between affected and unaffected markets. It is important to note that, because of these discrete and differential changes in the market shares of company-ops and independents, this analysis identifies the price effects of independent marketers and company-ops separately from many other factors that affect price, such as local demand patterns, rental rates, and time variation in wholesale gasoline costs.

❖ **Summary of Results:**

- ♦ ***Independent retailers increase price competition, lowering local prices by 5 cents per gallon, on average.***
- ♦ ***An increase in the number of company-operated stations does not have a significant impact on local retail price. There is no difference in price changes between markets with increases in company operated stations and markets with increases in dealer-run stations.***

This finding is consistent with economic theory. Independents compete heavily on price because they have no brand-loyal customer base. Independents are also the only retailers that can purchase gasoline from the lowest price wholesaler, and they are also the only stations that can completely determine their retail price independently of the upstream refiner. Even though lessee dealers and branded dealers can set the retail price, because the branded refiner can set the wholesale price (specific to the station in the case of the lessee dealer, or open dealers that are company supplied) they effectively set the lowest retail price that the station can charge. In the case of the lessee dealer, the refiner can set the lease rate, a volume discount, and the station-specific dealer tank-wagon price. These may be sufficient tools for retail price setting. In other words, the contracts between the refiners and the lessee-dealers are just as effective at setting retail price (indirectly) as the direct retail price setting at the company-operated station.

Summary of Vertical Integration in Gasoline Supply: An Empirical Test of Raising Rivals' Costs⁴

Main Result: Vertically integrated refiners have an incentive to increase wholesale prices to independent marketers in order to increase retail prices and profits. It is important to consider such interactions between vertical integration and competition in antitrust merger policy.

There are large and persistent differences in retail and wholesale (branded and unbranded) gasoline prices across US metropolitan areas. Causes for wholesale price disparities across markets are most commonly attributed to two factors: environmental regulations, and wholesale market concentration. First, meeting EPA emissions standards may increase the cost of gasoline prices in non-attainment areas, leading to higher prices in those markets. However there are large and persistent price differences across metropolitan areas within non-attainment markets.⁵

The second factor that contributes to wholesale price variation is wholesale market concentration. Differences in number of wholesale competitors could certainly lead to large and persistent price differences across markets. More competitors means less market power and competitive prices. For this reason, antitrust and merger policy focus primarily on mergers that would significantly decrease the number of competitors in a market.

Vertical integration is a third factor affecting competition that has not been carefully considered. Vertical integration can act as a barrier to entry: when refiners own most of the stations in a market, it becomes very

⁴ This section summarizes the results of "Vertical Integration in Gasoline Supply: An Empirical Test of Raising Rivals' Costs." By Justine Hastings and Richard Gilbert, University of California Energy Institute Working Paper #84 (2001).

⁵ For example, in California, where California Air Resources Board (CARB) reformulated gasoline is required in all markets, the wholesale prices may differ substantially. For the first week of September, 1999, the average wholesale price of unbranded gasoline was 91 cents per gallon in Bakersfield, and 72.65 cents in San Diego. Both metropolitan areas are supplied via pipeline by refineries in Los Angeles. Transportation costs via pipeline are not more than a couple of cents per gallon. Source: Oil Price Information Service.

difficult for outside refiners to enter the market and sell wholesale gasoline when prices in that market are excessively high. In addition, vertically integrated refiners have an incentive to increase wholesale prices to independent retailers. Why? If an integrated refiner raises the price of wholesale gasoline, they raise the input costs of independent retailers. These independent retailers must then raise their retail price to cover their higher input costs. The integrated refiner can then, in turn, raise the price at its retail stations, and therefore increase total profits. *Unintegrated refiners do not have this incentive to raise input costs to independent retailers.*

- ❖ ***Integrated refiners may have an incentive to raise the input cost of wholesale gasoline to rival independent retailers. Independent refiners do not have this incentive to raise rival's costs.***

Both mergers between a refiner and a retail chain (vertical merger) and mergers between two refiners (horizontal merger) can lead to an increase in unbranded wholesale prices through the incentive to raise rival's costs. Horizontal mergers that generate increases in the downstream market share of one of the merging firms will increase the strategic incentive to raise wholesale prices.

- ❖ ***This analysis tests if integrated refiners act to increase their retail profits by raising unbranded wholesale gasoline prices to independent retailers. Results from the Event Study: An integrated refiner's unbranded wholesale price increases when it competes in the retail market with independent stations. Vertical integration increases wholesale prices through the strategic incentive to raise rivals' costs.***

The primary analysis uses Tosco Corporation's acquisition of Unocal's West Coast refining and marketing assets to identify the effects of vertical integration on unbranded wholesale prices.⁶ This event generated discrete and differential changes in Tosco's integration into thirteen West Coast metropolitan areas. Tosco sold unbranded wholesale gasoline in every market. When Tosco purchased Unocal's refining and marketing assets, it acquired many integrated Unocal stations. Post-merger, Tosco will incorporate the effect of its unbranded wholesale prices on its newly acquired Unocal stations. We find that Tosco's unbranded wholesale price increased after the merger, and that it increased in proportion to the increase in retail competition with independents resulting from the merger. These results are consistent with the strategic incentive to raise rival's cost.

- ❖ ***Results from US Metropolitan Markets: There is a positive correlation between the extent of vertical integration into retail markets and the average price of unbranded gasoline. This pattern is consistent with the price effects of vertical integration identified in the event study.***

After identifying the impact of the degree of vertical integration on wholesale prices in the Tosco/Unocal case study, we estimate the potential contribution of vertical integration to wholesale price variation across the United States. We look at a broad panel of US metropolitan markets from 1993-1997 to examine if the degree of vertical integration is correlated with higher wholesale prices, and if this price correlation is consistent with the price effect identified in the Tosco-Unocal event study. These markets were all affected by various horizontal and vertical mergers that occurred during this time period. These mergers affected the vertical and horizontal market structure in various markets.⁷

⁶ It is important to note that the only reason that this study focused on the Tosco-Unocal merger is because certain aspects of the merger and the markets it affected facilitated empirical research and the identification of the main result. Other mergers did not affect enough markets, or had other complicating characteristics that might inhibit a clean empirical identification of the incentive to raise rival's costs. Neither Tosco nor Unocal did anything illegal. Tosco's increase in price is simply profit-maximizing behavior – which is necessary for efficient markets. It is the job of economists and regulators to appropriately identify these profit maximizing incentives and question mergers that may lead a significant and non-transitory increase in price.

⁷ PADDs (Petroleum Administration Defense District) 3-5 cover the West Coast, Rocky Mountain, and Gulf Coast States. Data sources are available in the paper.

The results show that prices vary positively with the extent of wholesaler's integration into retail markets, even after controlling for measures of horizontal market structure. The analysis also implies that the degree of vertical integration into downstream markets can have as large an impact on wholesale price as upstream concentration. This positive correlation between the degree of vertical integration and unbranded wholesale price is consistent with the incentive to raise rival's costs identified in the Tosco/Unocal event study.

Main Conclusions from Research Analysis:

Independent refiners and independent retailers are important contributors to competition in retail and wholesale gasoline markets.

- ❖ *Independent retailers are uniquely important for competition:*
 - ◆ *The increase competition at retail level.*
 - ◆ *They allow entry into concentrated wholesale markets.*

In markets with concentrated refining capacity, producers can increase prices above competitive levels only if there are barriers to entry. Market power at refinery level depends on the number of refiners – but it also depends on the ability of outside wholesalers to enter market when prices rise. Outside gasoline producers can only enter a market if they have access to transportation, terminal and storage facilities, and a significant number of non-captive, independent retail stations through which to sell their product. It is important to note that large volume independent chains, such as RaceTrac, amplify the ability for outside entry into wholesale markets. Because they purchase to supply many stations (instead of a single station), they increase the ability for outside refiners to enter the market and supply their stations.

- ❖ *Independent refiners are uniquely important for competition:*
 - ◆ *Independent refiners do not have an incentive to raise rival's input cost to increase retail profits.*
 - ◆ *Independent wholesalers compete intensely on price, unlike branded wholesalers.*
 - ◆ *Because of these two factors, unbranded refiners are necessary to ensure sufficient unbranded gasoline supply at competitive prices – this is necessary for the entry and survival of independent retailers, including new chains such as KMart, Walmart, Costco, and RaceTrac.*

Unbranded wholesale markets are truly competitive. They are the only market where gasoline is gasoline, and retailers are free to purchase from lowest price supplier. Unintegrated refiners compete on price, and unlike integrated refiners, have no integrated retail component that might benefit from increases in unbranded wholesale prices. In addition, lower unbranded wholesale prices lead to lower branded wholesale prices in markets with many dealer-owned stations. Branded retailers who own their own stations can choose to switch to the unbranded market (and drop their retail brand) if their branded refiner's wholesale price is excessively higher than the unbranded wholesale price. In this way, dealer-owned stations link competition in unbranded markets to competition in branded markets. Vertically integrated stations (whether lessee-dealer or company-operated) do not provide this competitive link.

Positive Policy Implications:

- ❖ *Antitrust and Merger Policy should more carefully consider the impacts of vertical integration on wholesale gasoline prices, both in merger analysis and divestiture requirements.*

Antitrust and merger policy should more carefully evaluate changes in vertical integration when considering a merger. Vertical market structure can have as great of an impact on gasoline prices as horizontal market structure does. Horizontal mergers that result in a significant increase in the degree of vertical integration of one of the merging parties should be scrutinized more carefully. My research results also imply that competition may best be served by designing divestiture requirements to increase the retail market share of independent retailers, and decrease the average downstream market share of integrated refiners. Divestiture requirements for recent mergers have consistently required the divestiture of refineries

and retail outlets to a single company – creating a new integrated competitor. For example, the Exxon Mobil merger required the divestiture of a few hundred stations and a refinery in California. They were divested to a single integrated firm. Why not divest the retail stations to an independent retail chain (or chains), like RaceTrac, and the refinery to an independent refiner, like Valero?⁸ The results from this research imply that divesting the refinery to an independent refiner, and the retail stations to an independent retail chain (or chains) would do more to increase competition in California’s wholesale and retail gasoline markets.

- ❖ ***The EPA needs to incorporate secondary impacts on market structure and competition when designing environmental regulations.***
 - ◆ ***Boutique fuels further segment markets leading to fewer suppliers, preventing outside entry, and thus increasing price levels and price volatility.***
 - ◆ ***Extensive expenditures and capital investments needed to comply with environmental regulations have increased market concentration***

The EPA does not sufficiently consider secondary impact of environmental regulation on market structure. Incorporating analysis of market structure will lead to more efficient regulation that minimizes the dead-weight loss to consumers of decreased competition.

To the extent that refinery upgrades to produce reformulated gasoline and underground storage tank requirements for retailers disproportionately harm low-margin independent refiners and retailers who may not have easy access to internal capital to fund expensive compliance investments, regulations may have contributed to the increase in vertical and horizontal concentration, through the closure or sale of independent retail outlets and independent refiners.

In addition, boutique fuels segment markets and increase refiner concentration in two ways. If there is a supply disruption, supply cannot be imported from other regions of the country to meet demand if other refiners in other regions of the country do not produce fuel that meets local emissions requirements. In addition, if large integrated refiners choose to upgrade to supply reformulated gasoline markets, but smaller unintegrated refiners choose not to upgrade but supply only conventional gasoline markets, the reformulated wholesale market will become more vertically integrated. It will have a few, large integrated suppliers, and few to no unintegrated suppliers. This may lead to less wholesale market competition and higher wholesale prices for independent retailers.

Comments on Various Legislation Aimed at Increasing Competition

- ❖ ***Wholesale price regulations such as “Fair Wholesale Pricing”, “Branded-Open-Supply”, and “Zone Price Elimination” will not increase competition.***
 - ◆ ***They are most likely regressive policies that will lead to price increases in minority and low-income neighborhoods.***
 - ◆ ***They may lead to higher average wholesale and retail prices as well.***
 - ◆ ***They also may lead to further vertical concentration, lessening competition in the long run.***

There are several proposals that require refiners to charge the same wholesale price to their Lessee-Dealer stations. Common names of these proposals are “Fair Wholesale Pricing”, “Branded Open Supply” or “Zone Price Elimination.” I will refer to these legislations as “Fair Wholesale Pricing” (FWP). FWP legislation would effectively force integrated refiners to charge the same wholesale price to all of their stations. Currently refiners charge different wholesale prices to different franchised station.

Why are policy makers seriously considering wholesale price regulation? Industry trade organizations, politicians, and consumer groups have noted large differences in the station-specific wholesale prices that a refiner charges its franchise stations. For example, in Phoenix, Arizona, Mobil's wholesale price can vary by ten cents a gallon from station to station.⁹ Because of these wholesale price disparities, FWP laws have

⁸ Valero has now merged with an integrated refiner, UDS, and is no longer an independent refiner.

⁹ Source: Oil Price Information Service Dealer Tankwagon prices to stations in Phoenix, AZ for 1999.

been proposed in all West Coast states as well as in Maryland and Connecticut.¹⁰ Proponents of this legislation claim, correctly, that refiners use wholesale prices to price discriminate between markets - charging higher prices in markets that will bear them, and lower prices in more price-sensitive markets. They claim that Fair Wholesale Pricing will *decrease* gasoline prices by preventing such price discrimination, and requiring refiners to charge one “fair” wholesale price to all of their stations.

Lessee-Dealer Trade Groups are the main supporters of FWP. They claim FWP will lower prices because 1) refiners will lower the wholesale price to all stations, and 2) Lessee-dealers will pass this price decrease on to consumers, since they do not price discriminate like refiners do. There is strong theoretical and statistical evidence against both of these claims.

First, economic theory predicts that wholesale prices could actually *increase* if refiners are forced to charge one wholesale price. The profit maximizing single price to all stations may actually be *higher* than the average of the wholesale prices under price discrimination. FWP may actually raise gasoline prices - making consumers worse off than they were before. In addition, consumers who currently purchase gasoline at lower prices, such as those in low income areas, would experience the largest increase in prices under FWP. FWP may act to redistribute the share of refiner profits taken from high income workers to low income workers.

The second claim is not supported by empirical data: Lessee-dealer retail price patterns do not differ from those of Branded-dealer-owned stations. Dealer-owned stations *do* pay one wholesale price – the branded rack price. If it is the case that dealers would price discriminate less than refiners, we would expect to see that branded-dealer-owned stations have much lower price dispersion across markets than lessee-dealers do. Retail prices provide evidence to the contrary. The average price of branded gasoline is the same across lessee-dealers and branded-dealer-owned stations.¹¹ In addition, prices increase with local income levels and the percent of the local population that is white at the same rate across the two station types – branded dealers do not show evidence that they price discriminate less than refiners do. FWP will harm consumers – particularly those in disadvantaged socio-economic groups.

In addition, FWP may have a negative secondary impact on dealer-owned stations. If FWP induces refiners to set a higher wholesale price, this will necessarily increase the rack price. This may lead dealer-owned stations to exit the market, by closing their stations or selling them to refiners. As mentioned earlier, these stations are important for competition because they can switch between refiners or to an unbranded supplier, unlike lessee-dealers. If FWP causes these stations to sell to refiners, FWP could actually lead to more vertical integration in the long run, further harming any competition that still exists.¹²

❖ ***Divorcement will not lead to lower prices, and may increase inefficiency.***

The summary of the results of research presented earlier indicate that divorcement will not lead to lower prices. Divorcement does not decrease entry barriers into wholesale markets, and it does not increase competition in retail markets. Stations owned by a refiner are still integrated – regardless of whether a refiner or a lessee-dealer sets the retail price. In addition, if refiners have chosen company-operation at certain stations in order to minimize costs, forcing them to convert these stations to lessee dealers may lead to higher, less efficient, operating costs. In general, to maximize the benefit to consumers, we want to encourage firms to lower costs and lower prices – divorcement will accomplish neither of these goals.

❖ ***Minimum Mark-up laws do not increase competition in the short-run or the long-run. Minimum mark-up laws increase the price of retail gasoline without increasing competition.***

¹⁰ Fair Wholesale Pricing, or Branded Open Supply, was suggested as a potential solution to large price disparities in California gasoline markets in the State Attorney General’s Gasoline Task Force Report.

¹¹ This result is taken from station level price data for 1998 in Los Angeles and Seattle.

¹² It is important to note that many independent dealer organizations, such as California Independent Oil Marketers Association, believe that FWP may raise unbranded and branded rack prices, causing independent dealer owners to exit the market. These groups generally do not support this legislation like the lessee-dealer trade groups do.

They may also lead to inefficiencies in gasoline retailing – they encourage an over supply of gasoline stations.

Minimum mark-up laws (or sales-below-costs laws) are currently law in several states. These laws typically require that retailers charge a 6 percent mark-up over cost. In the case of gasoline, this is supposed to lead to lower prices. Requiring a minimum mark-up will lead to higher prices in the short term if required mark-up is higher than the free-market mark-up. However, the goal of the legislation is to foster competition. Proponents of this law claim that major refiners will act to predatory-price (charge price below cost) independent retailers, forcing them out of the market. The refiners will then be able to raise prices and increase profits. So, in the long run, prices will be lower in states with minimum mark-up laws, because independent retailers will still be in the market, preserving competition. So even though there is a mandated mark-up, this mark-up prevents predatory pricing by oil companies, and preserves competition in the long run.

Empirical evidence rejects the hypothesis that these laws have acted to preserve independent marketers. For example, Utah has had a minimum mark-up law in place since 1987. New Mexico has never adopted this law. If the law accomplished its goal, we would expect to see independents exiting in Albuquerque, for example, while remaining (or even entering) in Salt Lake City. Examining the market share of independents in Albuquerque and Salt Lake City refutes this claim. Both Salt Lake City and Albuquerque have seen an almost identical decline in the market share of independents over the 1990s - both by about 15 percentage points.

Not only is there empirical evidence showing that minimum mark-up laws do not preserve competition in the manner they claim, but they may induce inefficiency in the market. These laws benefit both independent and integrated stations. All stations, regardless of affiliation, are guaranteed a minimum profit. This may lead to an excessive number of gasoline stations – integrated or unintegrated. Consumers are worse off under this legislation. It is also important to note that it is illegal for a company to require a minimum mark-up on its own – that would be *resale price maintenance*.

A Final Suggestion

Members of your Committee's staff have worked incredibly hard organize these hearings and to prepare an extensive report on gasoline prices. I am certain that many of them now deeply appreciate the following two facts: i) there is a pressing need for independent academic research into factors that affect petroleum pricing in all markets and at all levels of the production chain, and ii) it is extremely difficult to acquire data to conduct such research. Private industry data is very expensive, and there is no single federal agency that funds economic research into energy policy, like the National Institute for Health (NIH) does for economic research into health-related policy questions. Perhaps we should introduce such grant programs for economists at the Department of Energy.

In addition, the Energy Information Administration collects data, but does not have a mechanism that allows it to be accessed by carefully screened academics at any meaningful level of aggregation. In comparison, the Census Bureau has worked hard at disseminating data in a range of aggregation levels, with corresponding levels of security to protect confidentiality. They have a model program of data organization and high security research centers that has significantly contributed to the production of high quality research, informing a large range of public policy decisions. Perhaps we should encourage the development of similar programs at the government energy agencies, to increase independent research into industries as important to our economy as petroleum and electricity.

Conclusions

- ♦ Independent retailers are important for competition. They are intensely price competitive. They can purchase gasoline from any refiner, thus increasing wholesale competition. They allow entry of outside refiners when local refiner's prices are excessively high.

- ◆ Independent refiners are important for competition. They are also intensely price competitive. They do not have an incentive to raise independent retailer's wholesale costs like integrated refiners do. They are important for ensuring adequate supply for independent retailers.
- ◆ Increases in vertical integration from the elimination of independent retail outlets and independent refiners, either through mergers or environmental regulation design, decrease competition in retail and wholesale gasoline markets
- ◆ Antitrust policy should incorporate the important role that vertical concentration can play in decreasing competition. Vertical relationships matter for competition, and need to be more prominently considered in merger analysis and divestiture requirements. I encourage the current efforts of the Federal Trade Commission to incorporate vertical integration issues into merger and antitrust regulation.
- ◆ The current system of segmented reformulated gasoline markets increases prices and volatility in the short run and in the long run. In the short run, boutique fuels lessen the number of potential suppliers for each market, increasing market concentration and increasing the potential for shortages.
- ◆ In the long run, price volatility induced by boutique fuels may drive out independent retailers. In addition, capital investment requirements to meet reformulated fuel requirements and a lack of independent retail outlets to sell gasoline to may prohibit independent refiners supplying many markets. These secondary effects will further increase volatility and price levels in the long run.
- ◆ Promoting less segmented markets, incorporating economic industry analysis into environmental regulation design, and promoting the expansion of pipeline and terminal systems to better integrate geographic markets will all help increase competition.
- ◆ Ensuring easy entry into high price markets through unintegrated refiner supply, unintegrated pipelines, supply terminals, and retail outlets will facilitate the interconnection of markets, reducing price volatility by increasing arbitrage.
- ◆ 'Fair Wholesale Pricing' legislation is not an effective policy for increasing competition and lowering wholesale and retail gasoline prices. At best, it will lead to price increases in low-priced neighborhoods, such as low-income neighborhoods, while decreasing prices in high-income, high-priced neighborhoods.
- ◆ Divorcement will not lead to lower prices or more competition – it will most likely only induce inefficiency. In general, to maximize the benefit to consumers, we want to encourage firms to lower costs and lower prices. Neither Fair Wholesale Pricing nor Divorcement will accomplish either of these goals.
- ◆ Minimum Mark-up Laws increase minimum prices without increasing competition. They are not an effective policy for preserving independent retail market share or retail competition.