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The above-entitled matter came on for hearing, pursuant to notice, at 9:00 a.m.

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PANEL ON: MARKETING AND DISTRIBUTION ISSUES

PANEL MEMBERS:

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MS. DESANTI: Good morning. Welcome to the second day of the FTC's second conference on factors that affect refined petroleum product prices. Today we're going to primarily be looking at marketing and distribution issues.

My name is Susan DeSanti. I'm Deputy General Counsel for Policy Studies. I'm here with Michael Wroblewski, also in the General Counsel's office. To the far right at the front table is Chris Taylor from the Bureau of Economics, and to my left is Jim Giffin from the Bureau of Competition.

We are very fortunate today to have a wealth of presentations and learnings to be presented, and then we have plenty of time for discussion as well. I think what I would like to do is just outline in general the sessions and then do the introductions as we go along.

This morning we're going to start with three presentations from now until about ten o'clock, and then we'll move into a discussion that will include everyone around the table. We'll take a break around 10:45, at 11:00 start with the final two presentations, followed by a discussion.

The first presentation this morning is going to be by Neal Davis, who as an industry economist at the Energy Information Administration. Neal is sitting over here. He studies U.S. and worldwide petroleum refining and gasoline
marketing industry as well as other subjects. He has a Ph.D. from Auburn University and a dissertation title of vertical economies and divorcement laws and empirical studies, so he's obviously been looking at this area for awhile.

He is the primary author of an EIA report on the changing face of retail gasoline marketing and, Neal, why don't we let you begin.

Whenever we have a room full of people, every single day you can count on something going wrong. Now it's going to be different each day as to what it is that goes wrong, but even though you test the mikes three times, the mike will go out. Even though you test the Power Point, the Power Point will go out.

We're looking for our technical expert on these things, so why don't we just wait and see. Tom, do you have a Power Point?

DR. HOGARTY: No.

MS. DESANTI: While we're working on our technical glitches today let us hear from Dr. Thomas F. Hogarty. Dr. Hogarty is an oil industry consultant, and adjunct economics professor at Virginia Tech.

(Discussion off the record.)

MS. DESANTI: Go ahead, Neal.

MR. DAVIS: Anyway, to sort of explain how this study came about, where I work in the Energy Information

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Administration, the principal thing that we do every year is report to Congress on the financial and operating data of the U.S. majors, and that's called Performance Profiles of Major Energy Producers.

It comes out every year, and then we have the year tagged on to the end of the title, and we generally do that from July through January or into January. The data starts coming in in the late summer, and then we have accountants go over it, and the analysts go over it, and eventually we start writing it. It goes through the review and so on.

The rest of the year we do other things, and those things vary from time to time, and last year, the thing I got to do was this particular study, so there's a rather limited time frame, and at this point I would characterize this chiefly as just a presentation of data that I collected from a lot of different places, but I had to write something, and so I just went ahead and wrote some words to go with it.

In general I'll summarize the whole paper, but I know that given the focus of this conference and particularly today, it's the latter half of the paper that you'll probably find most interesting. But in general what happened is that we had a fairly large decline in outlets, and if you have questions as to the various sources for these data, I'll provide those afterward. I don't really to intend to stop and go over it here, and to get our energy finance logo at

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Anyway, outlets declined. But at the same time motor gasoline supply increased, and obviously the outlets were used much more intensively. They also sort of changed, although really this had taken place far ahead of the 90s when you had convenience stores continuing to replace conventional service stations. In the 90s, you had at least as far as I could tell more of this idea of co-branding coming in where you had fast food franchises and convenience stores and the sale of motor gasoline all in the same physical location and usually in the same building.

The number of employees per outlet changed a little bit, and the salary went up a little bit. The interesting thing was when I indexed this relative to retail wages in general, there was actually a decline in the wage and not an increase. Obviously retail wages in general increase faster.

To give a plug for the stuff that we do when I'm not doing things like this, this capital intensity information is the data that we collect on annual basis to write the profiles, and we can get a measure of the capital intensity of these outlets, and as you can see, that rose over the period of time.

Now, as far as the marketing operations of the integrated refiners versus the non integrated, they tended to
move toward each other, and let me explain this use of
somewhat clumsy terminology. Traditionally the non
integrated refiners have been called independents.

We don't want to do that because by our own
definition, we is EIA, these are majors because they are
respondents to Form EI 28, the financial reporting system,
and in that they're respondents to that, we consider them
majors, and so it seemed inconsistent to use the term
independents here, but if that's what you're more comfortable
with, you can simply interchange that with non vertically
integrated. The integrated refiners are obviously the
traditional majors, the seven sisters, those kinds of
companies.

What happened was that the outlets for the majors
declined, and the number of states in which they were
operating also declined. They were consolidating their
operations. They were pulling out of areas in which they
found their operations to be somewhat less profitable, and
they considered themselves to be marginal players, and so
they tended to exit those. At least that's their
explanation, and data seemed to bear that out.

The interesting thing is that over this period in the
90s when this was taking place, and in fact it was taking
place even earlier. Into certainly '84, '84, in that time
period it was beginning. The interesting thing is that the
non integrated refiners were buying the assets from the
tegrated refiners, or if you will, the independents were
buying assets from the majors, and their operations were
increasing in scope and in size, and the average number of
states in which each of them operated went from 8 to 17
between '90 and '99.

Now, this is a figure, and I really want to
illustrate two things with this. One is that the major
operations were declining a little faster in the U.S. as a
whole, and then this break in our data. What happened in '98
was we realized that we were really losing coverage of the
downstream industry in the U.S. Refining and marketing
operations of U.S. majors, as we traditionally defined them,
were really in decline, and we changed the criteria.

Up to that point, to be considered a U.S. major, to
be a respondent to the financial reporting system, the focus
was really on oil and gas production. If you had 1 percent
or more of U.S. reserves of either production of either, then
you were a U.S. major, and that was fine in the 70s and well
into the 80s because those same companies were vertically
integrated because they do petroleum refining, and they
tended also to do motor gasoline marketing.

But as the 90s wore on, they became less and less
likely to do refining and marketing, certainly not to the extent
they had once, so in '98 we changed the criteria, and we had

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up to that point a criteria that if you had 1 percent or more of U.S. coal production or reserves, you were in.

We traded that for 1 percent or more of U.S. crude distillation capacity, which tends to be the way that EIA measures refining capacity. So we had these huge jumps. Basically the group of respondents increased by half that year.

And so if you're looking at our data, and it's available, they are good data that are available in Excel spreadsheets to download from the EIA web site, if you can find the finance page, which I'll be happy to give you directions to.

There's a huge change that occurred there, and you really have to be careful in using this data because of that, so then we had the same thing going on with plenty of gasoline that we're supplying where basically they were losing market share, and the U.S. total at that time was increasing, and when we added the non vertically integrated refiners, then we had much more coverage than we had had previously.

Now, the reason that all of this was taking place is that the profitability of refining and marketing -- and within our data we can't separate marketing from refining. The majors just don't. They're unwilling to, and they convincingly made the case in the early 70s when this data or
when this form was created that they couldn't separate it.  
Really you'll see if you look through this paper that  
all the financial data that is in there, other than this  
employment or wage data, is from the financial reporting  
system, and so it's -- we should be I guess somewhat cautious  
in generalizing from these results because these are the  
biggest companies for which we have these, but this is an  
indication the degree to which refining and marketing did not  
do well relative to all the other lines of business.  

Now, I basically created an aggregate other, which  
includes all upstream, foreign and domestic.  It includes non  
energy operations.  It includes other energy operations which  
tend to be coal, is increasingly tending to be downstreamed  
natural gas and electricity, and only in the last couple of  
years has refining and marketing relative to the other lines  
of business approached what it was doing last in 1989, which  
is really the last good year that the majors had in terms of  
the refining market, since refining and marketing just has not  
been competitive with the other lines of business, and  
they were exiting.  

They were also cutting costs, and part of the way in  
which they were cutting costs is through increased reliance  
on joint ventures, wholesaling and technological change, and  
I don't have any very good numbers.  It's pretty much  
anecdotal stuff on the technical change, and then  

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reformatting, which just means the way in which the stations were organized. This idea of co-branding was coming in.

These are some margins that we can construct using the financial reporting system data, and the gross margin is I guess what you would expect. It's an average product price less the average price of crude that you're requiring. There's also some degree, it depends on the company, of purchase product that goes into that, but in general it's the difference between average product prices and average crude prices.

Then we have operating costs, and as you can see, those were declining and actually accounted for the net margin increases towards the end of the decade, and we found that the net margin is pretty highly correlated with profitability, with return on investment. Some earlier work that we've done, and I didn't have time to look at it here, we found a 91 percent correlation between the two.

And then as you can see here, the degree to which they're relying on wholesalers and direct sales, which are fleet sales and things such as that, basically stuff that has almost no marketing costs associated with it and relying on those increasingly, and the things to which you would associate the marketing costs are being used less, and that is the extent of the main points.

One last thing I would like to mention, if anyone

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would like, I've made copies of a table that's in this paper. It basically indicates the movement of the assets during the decade, who is selling, who is buying refineries, retail outlets and things such as that, and you may find that interesting, but it's such a large thing, I didn't want to try to put it into this Power Point presentation.

(Applause.)

MS. DESANTI: Thank you, Neal. I would like to ask just a couple follow up questions. I'm wondering the extent to which EIA has data that allows you to look at different geographic regions to see what the different trends could be and different to geographic regions.

We were hearing some things yesterday about how refinery margins are really low, but then it turns out refinery margins in California are not so low, and so I'm wondering if there's any data that you all have that has allowed you to look at different regions to see how the trends might differ depending on the region in the United States.

MR. DAVIS: Well, the Office of Oil and Gas does collect data that they -- and really most of the EIA outside of the group in which I work collects facility data, if you will, so you can associate those data with particular regions. You can get state numbers, PADD region numbers, and they sum up to U.S. numbers.
The stuff that we do, this finance stuff, the financial reporting system, is corporate stuff, and only heroically have I ever done anything on a regional basis, and what I did do a couple of times was those particular years that warranted it was stories on PADD V, and I tried to do a similar thing with PADD III last year, and it didn't work.

And here's the heroic nature of what it is, is that it is corporate data, but I took the position that if at least half of the corporate refinery capacity is in a single pad, then I will heroically assign the profitability of that particular company to that PADD.

The trouble is we've got these disclosure rules, and I have to have four companies to do that. In PADD V I do because I've got Unocal, Texaco and Chevron, and so on, for some years, and then later years I've got Equilon and Tosco taking the place of Unocal and of Texaco.

You can't do that in any way other PADD. Well, maybe PADD I, although that hasn't been of interest seemingly, certainly not to the extent of PADD III lately and before that PADD V, but that's the only way in which we've been able to do any of this stuff, and you can see it's somewhat heroic.

MS. DESANTI: Thank you. Any other questions at the moment? Any questions? Okay.

Now we have arrived at the fourth inning, and we will here from Dr. Hogarty, who is an oil industry consultant, an
DR. HOGARTY: It's good to be here this morning. My presentation is on the web site, and today I'm just going to go through four points based on that presentation relevant to the material today. I think I'll just state those four points and then briefly talk about each of them.

The first point is that retail prices of gasoline are more volatile than most retail prices, but this volatility is good for consumers. It benefits them.

The second point, and this I think is a surprising point, retail gasoline prices vary less among areas and among sellers than most other retailers. I think that's pretty surprising, but I'm going to report some evidence to support that.

Third, adjusted for taxes and inflation, the long-term trend of pump prices is downward, and this downward trend is partly due to new competitors coming into the retail markets using new distribution methods.

Fourth, competition from new distribution methods may be constrained by siting problems, especially in the future.

Now, we know that gasoline prices are volatile. The
Consumer Price Index has a special section called the special index energy commodities, and the fact that that is of interest testifies to the volatility of gasoline because that's what really makes it volatile, and we observe price spikes like we had in California in '99 and in the midwest in 2000, 2001, but those were preceded by a tremendous price collapse in 1998, so we've had the volatility down and the volatility up.

Over the long run, I think that the volatility benefits consumers. In fact, I would go so far as to say the spikes can help. The spikes make it possible for new competitors to get a foothold. The spikes also lead to small innovations whose cumulative consumer impacts is pretty significant. I'll mention one.

Self-service was around for a long, long time, but but at one time it was illegal in most states. Only in the 1970s when we had gasoline lines and subsequently high end rising prices were state legislators motivated to repeal the laws of prohibiting self-service, and once it got going in the 1970s, it spread like wildfire, so that by the end of that decade and certainly by the end of the 1980s, full service had practically disappeared, to be prevalent only in New Jersey, Oregon and a few other places.

Those price spikes of the 1970s also radically changed the automobile market I would contend. My
recollection is that before those price spikes, foreign cars were relatively unpopular. They didn't sell very well in the United States. The price spikes induced consumers to look at those cars first as fuel efficient vehicles and later as ordinary family cars.

And I think that the car evidence is testimony to the fact that that competition, which was precipitated by the high gasoline practices, has met consumer benefits. There's more competition in the automobile industry than previously.

Now, to the second point. If you look at articles like USAToday which say, Why is gas less a block away or another article said varying prices for gasoline, drivers fuming, you would conclude somewhat correctly that gasoline prices vary all over the place.

Well, it is true. There are significant differences among gasoline prices by area, but recently two people looked at that question systematically. In a study for the American Petroleum Institute in 1997, Professor Ron Johnson of Montana State University compared gasoline prices with a host of other commodities across 300 metropolitan areas.

Surprisingly, he found that despite the inclusion of taxes in the price of gasoline, that only one other commodity or service had less price variability, and that was mortgage interest rates. That is the lowest coefficient of variation or measure of price variability attached to mortgage interest
rates. The next lowest was gasoline.

That's very surprising. You would tend to think of gasoline of varying all over the places, but he found more uniformity among gasoline prices than among others.

The second study published in the Review of Industrial Organization, I think also in 1997, was an interesting comparison. A fellow named Adams, also I think from Auburn University -- I'm not sure but I think he might have been. He went around to 20 or so convenience stores in different areas, urban, suburban and so forth.

And he examined their gasoline prices, and he looked at some 22 or 20 odd other items that the convenience stores sold, and he compared the variability, looked at the variability of gasoline, the variability of the convenience store items. The convenience store items tended to vary more than the gasoline, so the convenience stores were more homogenous on the price they charged for gasoline than in the price they charged for the convenience store items. In fact, I think he found that 20 out of 22 items had more variable prices than did gasoline.

While this is very surprising when you think that, gee, places like Los Angeles, Chicago and New York have very high gasoline taxes, places like Atlanta, Newark and St. Louis have much lower gasoline taxes, yet Johnson found more uniformity with gasoline prices across the country, very,
very surprising. Now, why could this possibly happen?

I would suggest that it's the way that gasoline is
sold that accounts for this phenomenon. We all know that the
gasoline price is posted prominently on the outlet
entrance. In fact, if you take Interstate 40 across the
country, you'll come across numerous billboards advertising
the price of gasoline miles in advance, highly visible for
long distances and competitive prices.

The second phenomenon associated with this is that the
pump price of gasoline includes all taxes. Like you, I'm sure
I've had the disappointing experience of getting a great deal
on a rental car and landing near to the airport and picking it
up and, Oh, by the way, there's a 28 percent tax, or you go to
a hotel with a great price and there's city tax, county tax,
and none of that is told in advance, but with gasoline prices
the pump price includes all those taxes. You know before you
ever enter the outlet what price you're going to pay.

I don't know of another commodity where you can do
that. I don't know of another commodity where you can drive
around and check on the prices. You can walk up to a
restaurant entrance and in pretty legible print read the menu
of the day and see the prices, but there's nothing like
gasoline.

And I would contend that this availability of
information to consumers is the reason for the relative

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uniformity of gasoline, and going further, I would say that consumers are very familiar with the price of gasoline. I'm sure consumers are investors, and they watch stock prices more than anything else, and they're home owners and they watch mortgage interest rates, but most consumers, at least many of them, know a lot about the price of gasoline.

They can tell you what they're paying, at least the amount it costs to fill up their tank. Sometimes they can even tell you the pump price. This familiarity and knowledge augments whatever competition exists in the market and causes the price of gasoline to be more uniform than it might otherwise be.

Next point. The new distribution methods combined with the competition from formerly non major refiners have contributed both to the lower but also more volatile stock -- gasoline prices, pardon me.

Neal was just describing the phenomenon under which in recent years especially major refiners have been selling off their refining and to some extent their marketing assets. These assets have been purchased by what were formerly called independent refiners, and I'm happily going to follow Neal and call them non vertically integrated refiners.

So we have some new competitors in the refining sector, but there has been even more entry over the long one
in the marketing sector. 50 years ago dealers were
dominant. 25 and especially 20 years ago they started to
lose that dominance to what were called branded jobbers and
to a large extent independent marketers.

Today the marketers are dominant, far more important
than are the dealers, and among the marketers, it's the
largely formerly independent marketers that have become most
dominant. What has happened is that many of the formerly
independent marketers have branded up, meaning that they keep
their independent status. They still sell brand X or brand
Smith or brand Jones, whatever, but they also lease with a
couple of major branded companies.

So here what we have are effectively chain retailers
combined as wholesalers buying from multiple sources. They
have more or less taken over much of the middle man function
from dealers. More recently there has been the challenge
from the hypermarkets.

Now, I think that the evolution of competition in the
retail sector has contributed somewhat to the volatility of
gasoline prices. Let me try to explain how. Among wholesale
prices the most stable is the dealer tank wagon price. The
least stable is the spot price, so ranking them, the dealer
tank wagon or dealer tank price wagon would be the most
stable. Next most stable might be the branded rack, then the
branded rack and then stock price.
As dealers have lost market share or channeled market share, the importance of the dealer tank wagon price has diminished in the weighted average. The dealer tank wagon price was the most stable. The relative importance of the spot price and the unbranded rack price has increased in terms of challenge market share, and this is meant in an evolutionary long-term sense an increase in stability and wholesale gasoline prices.

Now, the latest entrants, hypermarkets so-called like Costco, perhaps Wal-Mart and the like, they mean dramatically lower price because they carry economies of scale in retail to an unprecedented level. The independent marketers in a manner of speaking greatly increase, maybe double or more, the volumes obtained by independent dealers.

The hypermarkets have doubled or more the volumes obtained by the independent marketers. The economies of scale realized have been tremendous. Historically a good average pooled margin, that is pooled overall grades of gasoline, might be 10 cents a gallon.

I would not be surprised to find hypermarkets averaging something like a nickel a gallon. If my guess is correct, they have an opportunity to increase their market share tremendously.

There is a hitch though. The hypermarkets like the really independent marketers such as Sheetz locally and many
others depend increasingly on those more volatile spot and
unbranded rack prices so their lower average prices tend to
come with a cost, and historically we found in gasoline
marketing that if you do pursue lower prices, you have to be
prepared for the occasional price flips because the dealer
tank wagon price and to a lesser extent the branded jobber
rack price would represent a contractual commitment between a
refiner and a marketer or dealer. There is much less of that
with the unbranded rack and with the spot.

The last point. Competition from new competitors,
from new distribution methods, from new people on the block,
so to speak, has been slowly weakening a little bit over the
years. What I mean is I think it's a little bit harder to
enter the gasoline retailing business than it used to be if
for no other reason than the capital costs are higher.

The cost of land continues to rise, and it's very
hard to get enough revenue out of a retail gasoline outlet,
however configured, to justify the cost of the land it
occupies.

What I'm leading up to is that there are emerging
constraints on new retail outlets, and these restraints have
become more important in recent years. I think we all
recognize that we consumers, we residents, all of us love to
shop at hyper markets and convenience stores, but we don't
want to live near them, and this is the intractable problem

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that the hyper market faces. Where is it going to go? Where
is the convenience store going to go?

Now, this is sort of a problem for convenience
stores, but they're pretty small. They can locate in enough
places to get by and do pretty well. For a hyper market, a
really big bucks retailer that is going to have gasoline
pumps, has to be a lot of land and many approvals, and land
zoning then becomes a significant issue.

And I recall a PBS videotape lasting about an hour
talking about a drama in a town in Virginia where the
Wal-Mart just barely got approval to locate another outlet.
I think it was Ashland, but I can't remember.

These zoning and other restrictions render gasoline
outlets uneconomic in a lot of areas, and this becomes
important because work by John Barron and John Umbeck at
Purdue University, which they were nice enough to share with
me, shows that station density makes a big difference in
prices paid and in the state of competition. The more dense,
the greatest the station density, the greater the
competition, the lower the prices. The old-fashioned
gasoline alleys got you cheap prices.

Well, station density tends to be much less as these
zoning considerations come into play, and in general I would
offer the hypothesis that facility siting problems are
perhaps the biggest barrier to new competition in the
manufacturing, the storage, the transportation, and the
marketing of gasoline.

I think that throughout the chain, finding sites for
those facilities, refineries, tank farms, pipelines, even
retail outlets, becomes the principle constraint on
competition. Except for that constraint, I think it's a
pretty free entry.

A few closing comments. Historically the high
volatility of gasoline pump prices has been due to
fluctuations and crude oil costs. I think this has been well
documented. In the future, I'm not sure that this will be
true, and in the future it's possible that crude oil prices
would be lower.

I'm relying on some numbers I saw in the report that
Neal puts out, the financial reporting system performance
profiles, on the finding cost of crude oil. They tend to be
pretty low compared to the current prices of crude oil, and I
expect the world to find a lot of crude oil over the long
run, and I think that the long term trend of crude oil prices
is down.

On the other hand, while gasoline prices may become
less volatile because crude oil prices become lower or more
table, I think they will become more variable by area.

After yesterday's session I was convinced that there
were going to be more jurisdictions specifying more non
conventional gasoline to be sold in their areas, and I would not be surprised to see more jurisdictions imposing stricter siting requirements on manufacturing storage, transportation and marketing facilities.

If this comes to pass, what it will mean is that the reduced volatility and increased variability would make retail gasoline prices less dissimilar to other prices.

Thank you.

MS. DESANTI: Thank you, Tom. Next we will hear from Glenn Waddell. He has a Ph.D. from Purdue University and is an assistant professor of economics at the University of Oregon since 2000.

His research interests are in labor economics and industrial organization, and he's going to be presenting some research that I believe Tom mentioned on relationships between seller density and price elasticity in retail gasoline markets.

MR. WADDELL: Thank you for the invitation. Dr. Hogarty asked, and I ask again, Why is it that gas is less expensive a block away? That's in part what this particular line of research is intending to address.

Before going any further, I acknowledge the efforts and contributions of Jack Barron and John Umbeck.

We have an observation similar to that which Dr. Hogarty has given us which is that people notice gasoline
prices vary sometimes quite widely. Here are some specific numbers you can look at, a figure demonstrating the differences in prices between Los Angeles and San Diego, between Los Angeles and the San Francisco Bay area.

I'm going to start with a little bit of theory. I'm going to try to go through that pretty quickly because the interesting thing from our study here is not the theory but rather the opportunity that we had to actually set gasoline prices ourselves. I am going to motivate this a little bit with some theory, address some of the issues that are related to this literature, and then try and quickly get on to our experimental procedure.

Essentially what we're wanting to do here is estimate elasticity. Dr. Hogarty referred to the work of Barron, Taylor and Umbeck looking at station density, sort of cross-sectionally saying that where stations are more density populated, we see significant differences in the pricing.

We're going to actually take a different approach to that same type of question, sort of back door approach or you might actually consider it the front door approach, and we're going to actually measure elasticity.

The model would predict it's elasticity that's causing those differences. We're going to go out and measure that. We have an opportunity here to measure that without some of the issues that would be common in measuring

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elasticity.

The results, we'll look at some predicted differences and in so doing, ask whether we can explain away some of these differences that we observed say between San Diego and Los Angeles, so it's important to keep in mind before I go any further that not looking at the difference between San Diego and Los Angeles explicitly.

I'm looking at the difference from one market which I'll define in a minute and another market for gasoline. It could be anywhere. It could be in San Diego. It could be in Los Angeles, and from those differences in market, I'm going to predict an elasticity.

From my predictable elasticity, I can say something about what I might expect to be the case in terms of prices across locations.

We have a model of a fairly standard sort of monopolistically competitive market in marginal costs and demands characteristics within market. Buyers have common product values. There's realized product differentiate which is what makes this a monopolistically competitive model in that there are some cost to visitors purchasing gasoline or shopping for gasoline.

Buyers know the prices of all sellers, and they know visiting costs before the decision to purchase is made, but from a seller's perspective, I have an idea of what these
visiting costs might be. I have an expectation of them. Some individuals may have higher, some individuals may have lower than my expectation. There's some randomness to that net value that consumers would put on the product I'm intending to sell.

I'll skip over a lot of the model, which concludes that given those conditions and others that are available in the paper which corresponds to this presentation, the market equilibrium has all firms charging the same price. Explicitly the price is going to be equal to some markup times marginal cost.

So I have alpha here to capture marginal cost, this markup strictly greater than one. Firms optimally choose prices such that where the elasticity -- I have elasticity over here, where the else, the responsiveness of the consumers in the price I set is higher, my markup would be less, my markup over marginal cost.

Let me back up. If you look at that and you see quite simply then that the price is a function of this markup and marginal cost, so the next step we take is to say, well, if we observe prices being different across markets, it might be driven by one of two things, marginal cost or this markup.

Markup is essentially a function of elasticity, so we have two then to look at to try to predict differences across
markets, marginal cost and the price elasticity of demand.

So if we have heterogenous marginal costs across markets, otherwise identical, different marginal costs, equilibrium price will be higher in the market with the higher marginal cost.

If marginal consists are lower for retail gasoline markets in LA relative to San Diego and the Bay areas, then we will not be surprised to see that the prices will also be lower, and you might be thinking, transportation costs or the like would explain potential differences in marginal costs.

Given that our markup is strictly greater than one, that is our mark up over marginal cost, a two cent difference in marginal cost which you might contribute to transportation from Los Angeles so San Diego as an example can lead to a price differential of more than two cents, but the size of the price differences that we do see in the late 1990s between Los Angeles and San Diego often exceed three times this two cent difference which would imply from the theory a elasticity of less than 1.5.

Quite frankly, we don't observe price elasticity in that range, which leads us to think there's much more to this story, and the interesting part of this story would then be heterogenous demand, that there's something different about the demand characteristics facing one marketer as opposed to another in a different market.

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So it can be shown that an increase in the number of sellers that accompanies an increase in market size increase the price elasticity of demand and therefore leading to a lower equilibrium price. The intuition behind that, what's the intuition?

You take a fixed location, say a one and a half mile radius around my particular station, and you introduce new sellers into that market. What have you done to the visiting cost of the average consumer? You put stations necessarily -- given I have 1.5 mile radius around my station, you've necessarily made each station closer on average. You've essentially made these stations closer substitutes, and from that you would expect then more responsiveness in terms of consumers responding to station set prices.

So I want to say something then about the relationship between station density and increases in the seller price elasticity and demand.

This brings us to the interesting question, how does one obtain estimates of the price elasticity of demand? This is a problem that has plagued many in the past because essentially what you need to do is you need to observe the effective changes in prices on sales, holding constant anything else that might influence the level of demand.

It's difficult to think of an example where you might be able to do so. Often a price change occurs precisely
because of a change in one of these factors.

Atlantic Richfield allowed our control of prices at 54 of their stations. We had 79 -- I think it was 79 days over which we had control of prices, and as academics, we sort of respond to this and say, Well, you can't be serious. We questioned it and we questioned it, well, it looks like we have control over prices.

We had different constraints within which we could set prices, but essentially we were out there setting market prices for gasoline, nine stations in the Bay area, 25 stations in LA, 20 stations in the San Diego area.

Can we explain away these differences by looking at elasticities? Typically, we can't measure elasticities. Well, wait a minute. If I could actually change the price of gasoline exogenously, I can measure an elasticity, and that's what the opportunity here gave us.

In this control of prices, we also collected control station, what I'm calling the control station, the 54 we actually had control over, station characteristics. We had quantities sold. We also collected prices at every station within two miles of the 54 stations we are controlling prices at, so at this stage we essentially have enough to measure elasticity.

We have changes, exogenouse changes in the price of gasoline, and we have corresponding gasoline sales. I can

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measure an elasticity. What I wanted to do, however, is measure elasticity and talk about this hypothesis that suggests elasticity will be different in markets where the alternative stations are more densely populated. That is, where consumers have more choice in a given market, my elasticity will be different.

We divided these stations into two groups. This is just some particulars of the procedure we went through. Constraints we had to work within were two cent increases and decreases, so we kept the information about the identity of these stations private until the morning of the change at which time a phone call was made. The change was implemented.

We maintained this price for one week, after which the price control was released, and standard company procedures would then take over determining prices.

We used three sources for our measure station densities. Lundberg, Whitney-Leigh, and MPSI data were used. We essentially had every station within two miles of each of these 54. The results you will see today are for market defined as stations within 1.5 miles. The results are robust to permutations on that figure though.

If you're to look at the three areas in question and try and come up with some sort of proxy for how we're going to measure density, we can see what we've chosen to do, that
is we consider a market of low density, that which has fewer
than 10 stations within 1.5 miles, some sort of mid level
density between one -- sorry, between 10 and 15 stations
within 1.5 miles and a high density station, a station that
has more than 15 stations within 1.5 miles.

And you can see that we've chosen these numbers to
try and have significant representation in each of these
categories for the areas.

To estimate the price elasticity of demand we
specified this demand equation for a particular station of
type K where K is defining the density, and a particular
grade of gasoline, so we have the log of sales is a function
of the station's own price, alternative prices. I'm going to
use the average of alternative prices within the market, and
then some station characteristics that potentially will
influence volume.

Again as I've alluded to, this type K will be
specific to low density alternatives. This was a station
that has less than 10 other stations within 1.5 miles. Mid
would be between 10 and 15, and high would be more than 15.

So our prediction than would be that this beta, the
representativeness of volume to changes my own price will be
higher at high density stations. That is, beta sub L will be
lower than beta sub M which will be the lower than beta sub H
would be the hypothesis.

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As controls, it's also interesting to consider the following. What we actually have here are sellers of three grades of gasoline. I won't go into too much detail, you can see the prediction that we have here which is just that as the regular to mid-grade price ratio, that is, as regular price relative to mid-grade price rises, we would expect people to substitute out of regular grade into mid grade. As mid to premium grade price ratio, increases, we expect people to substitute out of mid grade into premium. We want to control for the within station substitution.

Let's concentrate on regular grade so we can save on some time here. Here's our elasticity measures, significantly increasing in station density. That is high density alternatives, that is markets that are defined as highly dense markets, individual consumers are more responsive to changes in price. You can see this for a regular grade, for mid grade and for premium. You can also draw conclusions about how responsive they are to regular grade price changes relative to premium. I'll leave that for your consultation of the paper.

Cross price elasticities, again consistent with theoretical predictions, people are more responsive to changes in the prices of gasoline where stations are more densely populated.

Individuals also respond to changes in the relative
price of regular to mid by substituting out of regular grade into premium. We can also say something about the substitution between mid and premium. This co-efficient here is the only one of those that I've shown you that is not significantly different from zero at a 1 percent level.

So in wrapping up then, we have estimated price elasticities. We know the average station density in a location. We can calculate that an average price elasticity or an estimated average for each area, San Francisco, San Diego and Los Angeles which you see in front of you.

From that in our theoretical link between prices, the markup and marginal cost, let's assume for the moment that marginal costs are constant across these areas, we can predict a price marginal cost ratio or we can predict essentially a markup and you see how they differ.

From this you can predict the percentage difference from LA's price, that is the prediction suggests that the Bay area has prices 4.5 percent higher than Los Angeles, actual price differences between '95 and '99 on average 7.7 percent higher. San Diego, prediction would be 7.1 higher prices than LA; actual percentage difference, 6.3 percent higher.

So we conclude higher prices in San Diego in the Bay area is relative to Los Angeles reflect lower price elasticities of demands arising from lower station density.

What do you expect to happen over the long run here?

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Other things equal, such differences should translate into lower relative return to stations in LA. Is there evidence of a decrease in the number of stations in Los Angeles area relative to the Bay and San Diego areas? Yes, there is. The figure is in the paper as well.

Is there evidence consistent with entry restrictions in the San Diego or Bay areas? Yes. Again in the paper we report existing stations in San Diego and the Bay areas are utilized more intensively than stations in the Los Angeles area, again evidence that's consistent with there being entry restrictions in San Diego and the Bay area.

Thank you.

(Applause.)

MS. DESANTI: Thank you all very much. I would like to start asking some questions in the area of this very local nature of geographic market competition, which it seems like you are describing.

Glenn, you have your study that talks about the density of stations, and, Tom, you've made some observations about hyper markets and how this is all changing.

I'm wondering a few different things, and let me start with a series of questions, and then we can expand from here. One question is: Neal, starting with your observation that there's been a switch in the sense of -- and here we have to define some terms -- from the companies that were
considered majors say in 1985, and you've got a new
definition now of majors, but from those previous majors that
are vertically integrated into exploration and production, in
essence getting rid of stations is what I'm taking from what
you're saying, and previously -- well, previously considered
non major, now considered major refiners acquiring those
stations.

Can you tell me something about what your
understanding is of why that would make sense from each
participant's perspective? In other words, why did it make
sense for the former majors to eliminate those stations, and
why did it make sense for the independent, non vertically
integrated refiners to acquire those stations?

Do you have a sense of that?

MR. DAVIS: Well, I think in the case of the majors,
what was going on was that they were -- I guess their
motivation in the 50s and 60s, and I'm speculating, but
anyway at some point was they wanted to be anywhere and
everywhere, and they realized that that was an extremely
expensive strategy, and certainly when you saw these
takeovers that were taking place in the 80s, I think there
were some incentives provided to sort of reexamine that and
try to reduce their costs.

And as far as I can tell that's what was behind the
companies doing those things, and it's interesting, I don't

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want to speculate as to really why here, but BP sold off some stuff to Tosco in the Pacific northwest, and yet a few years later they acquired ARCO. They in a sense came back, so you had some interesting things that were going on in that way that might suggest other things as well, but in general it seemed as if they just wanted to become more regional.

There were areas where they were doing I guess relatively well, and they tended to focus on those areas or at the very least get rid of the areas where they weren't doing so well.

As far as the other companies, and I really haven't thought about this, but I would speculate that they were small, and it made sense for them to add stations that were near them, and so these guys were in various places so somewhere, if majors are getting out, there's an independent or what used to be an independent refiner, at least with some willingness to acquire those assets because I think they would be making themselves a more viable competitor thereby.

If they hadn't, I guess they might have been left with the conclusion that it might be better just to exit the industry altogether, but that's a speculation I've never even thought about before right now.

MS. DESANTI: Is there anyone else who has any awareness of work that's been done in this area to help us understand why this happened?
DR. HOGARTY: I can repeat things I recall from my years working in the industry. I can't give you any specific studies, but for a long time, the majors were spread out among almost all of the states. In fact, some of the majors bragged about being in all of the states, and that was a service to the consumer and from that point of view they operated these dealer networks, and they tried to provide a high quality brand with quality control over a very large geographic area, the 48 states, for example. And it was considered high quality gasoline at a certain amount of high cost marketing at a reasonable price.

Beginning especially in the 1970s, before then it had started but accelerating in the 1970s, the independent marketer business model became more prominent, actually won out I would say, that the independent marketers gained a large market share at the expense of the majors. In effect, the marketers were beating the major dealers, and gradually perhaps inspired by ARCO, which dramatically shrunk its territory and eliminated its credit card, the majors, one by one, did what Neal was talking about.

They cut their cost in terms of shrinking their marketing networks, trying to get geographic areas in combinations that permitted cost to be lower in marketing and in manufacturing, storage and transportation and all the rest, and that starting from that base, they just gradually

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shrunk down toward the middle, and the others were moving in
the other direction.

I remember hearing marketing managers tell me that
with a very small market share your profits are pretty slim,
but wonderful things start to happen when you get the
economies associated with a market share of 10, 15, 20
percent in a given area.

If you can get the market share up, there are
tremendous savings to be realized in terms of simple things
like truck deliveries and the rest, so that economies of
scale in the manufacturing, the storage, transportation and
marketing of gasoline are considerable, and those were less
important in the past when consumers were less focused on
prices than they have been in recent decades.

MS. DESANTI: Thank you. I have to apologize to
Michelle Burtis and Beck Taylor. I would like to do your
introductions now so that people know who you are as
participate in our discussions, as I hope you will.

Michelle Burtis is on my left. She's a principal at
LECG, an economics consulting firm in the firm's Washington,
D.C. office since 1998. She's been an expert witness for and
consultant to companies involved in commercial litigation and
mergers.

In her work in the petroleum industry, she's analyzed
the competitive implications of a variety of business
practices including both horizontal and vertical integration, dual distribution, pricing practices, exchange contract and other phenomena.

Beck Taylor is the W.H. Smith professor of economics at Baylor University where he has taught since 1907. He's studied and written extensively about the petroleum industry, and he's won numerous teaching awards.

He has a Ph.D. in economics from Purdue, and he will be talking to us about open supply issues and whether open supply actually will or will not tend to decrease retail gasoline prices, and we'll be getting into some of those issues later.

Let me ask a follow up question. Is one implication of what you're saying, Tom or anyone else, that consumers have more of a perception of gasoline as a commodity where the principal competition is on price, and is that therefore something that is likely to encourage the establishment of hyper markets where price competition is, in fact, the primary driver that will make them succeed if they do so in particular areas?

DR. HOGARTY: I would leap out and say, yes, especially compared to the past. As recently as the late 80s, I believe that the quality of gasoline was a major factor in consumers' minds, and location always has been of paramount importance. Convenience is a big factor.

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If a given location is more convenient, that location will prosper, but aside from location, I think that brand value has greatly diminished especially in the last ten years or so. I would say especially since the Clean Air Act amendments of 1990 really established pretty full control over the manufacturing of gasoline in the hands of the Environmental Protection Agency.

And associated with that control over gasoline manufacturing has been a noticeable decline in television advertising for gasoline, and in general I think that brand values, especially individually, have diminished, and I would conjecture that valued in constant dollars the brand premium has trended to gradually shrink over time.

MS. DESANTI: Well, before I invite any more speculation, I saw some questioning looks among others, so Neal, does this comport -- would that hypothesis comport with your data or do you think it's more complicated with that necessarily?

MR. DAVIS: Certainly. I think that's a big thing, especially as Tom mentioned earlier the fact that they're so prominently posted. I mean, it's very easy -- I know in conversations that I had with my mother, she routinely tells me about gasoline prices changes by five or six cents and how she went here today because she saw there where she had been buying it was much more.
And I mean, I don't think she's a crazy old woman. I think she's somewhat consistent with her behaviors or consistent with other people. My wife would argue otherwise, but, yeah, I would agree.

MS. DESANTI: Beck?

MR. BECK TAYLOR: I would just probably go with what Professor Hogarty said, and that is that I think brand loyalty in some sense, the branding of gasoline has certainly diminished over time in terms of consumers' perception of the homogeneity of gasoline.

I think over time we've seen consumers viewing gasoline more as a commodity, a true commodity, which would I think correspond with the decrease in advertising expenditures and other things that we've seen in the industry.

I think that consumers in the current kind of environment that we're in right now in terms of the volatility of the oil and gasoline price -- I think consumers are more and more conscious of price variations within markets, maybe even more so than in the past.

I know just in my local market I'm contacted every single time gasoline prices go up for a local TV or radio interview as to why that's happening. I often ask why they don't call me when prices go down. I guess that's not as interesting a topic, but I think -- I don't know of any long
run studies that look at brand premia, but that would be
interesting to do it.

If you could get a long time path of station level,
market level data, to do a long-term study on brand premia, I
think we would certainly observe those premia decreasing over
time.

MS. DESANTI: Thank you.

MR. CHRIS TAYLOR: I have a question for Glenn
Waddell in terms of market size and marketing density. In
your paper you looked I think at a mile, a mile and a half
and two miles. I wonder if you could elaborate a little bit
on what different elasticities you saw by varying that and
what that can mean when we're looking at mergers of retail
gasoline stations.

MR. WADDELL: The results are generally robust to the
distance. The interesting thing in the paper is that as
density goes up within a fixed area, cost elasticities go up
so the question could be interpreted, do they go up as much
if you consider a one-mile radius, and the answer to that
would be I don't know.

Our elasticities -- we have evidence to suggest that
people are responsive to the changes in the price of a
station that's one and a half miles away as opposed to two
miles away. I would suggest that you're more responsive to
the station that's one and a half miles away than you are to
the station that's two miles away.

So I don't think there's any concrete evidence to
give you on that other than just my perception of the data
and what we've looked at.

Your second point about the importance of mergers,
can you repeat that?

MR. CHRIS TAYLOR: Well, what I was getting at was
sort of what you were talking about, which was as you
increase the market size, the results don't change that much
but they do change a little bit in terms of that.

And one of the things we have to do is look at the
size of markets in terms of how large do you get before you
see large changes in the elasticity, large being sort of ill
defined, trying to evaluate increases in concentration in
some fixed geographic region.

MR. WADDELL: Right. I think there's plenty of
evidence that suggests that these markets are local. Our
study doesn't really contribute to the argument -- as it's
written now doesn't contribute to the argument about how
local are they. It's just not the focus of the study.

MR. BECK TAYLOR: I'm sorry.

MR. CHRIS TAYLOR: Go ahead.

MR. BECK TAYLOR: I just might add that in doing
studies that vary in kind of the size of markets, for those
of you who don't know, these academic studies generally

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assume certain things about the market that don't take
account for differences in traffic patterns and major
highways and things like that just simply because that type
of stational data is hard to come by.

But it's surprising if you do kind of a search across
the literature of these papers, and there are numerous ones
now, Sheppard, Slade, work of my own, work of Glenn's, that
vary these market sizes. It's amazing how robust the results
of generally to -- qualitatively to changes in that market
size.

My own experience has been that when you start
increasing market sizes to five miles, ten miles, generally
you start losing the observed relationships, and I think it
might be interesting, Glenn, plan if you were to just play
around with your market size and just see whether or not you
break the result or you lose the result as you increase
market size.

MR. WADDELL: Yeah. The difficulty we have in that
though is that we only have prices collected within two
miles. We've already reached our upper bound already, so we
can't comment beyond that.

MR. CHRIS TAYLOR: I'll just --

MR. GIFFIN: If I can jump in here with a follow up
on that. One of the ideas that folks have used in looking at
retail competition is given that consumers are not likely to
drive five, six, seven miles to find lower priced gasoline, nevertheless, if you look at the area of a mile and a half say around the station and plotted that on the map and plotted all of those circles, you would have overlapping circles so you literally have chains of links across an area.

I wonder if you have any thoughts on that phenomenon and how quickly, if at all, the price competition effect would tail off as you get farther away from the center of that chain.

MR. WADDELL: Right. That's related to a question actually that Mike provided to me earlier, and that is on this localization sort of issue, do you want to look at local markets? I think it's important to recognize that at least in my opinion, when we say gasoline markets are local, that's from the seller's perspective. That is, I'm a given station, what market do I participate in?

That's a different question than to ask, Okay, I'm looking at this large area and how do I construct policy with respect to how I deal with this large area? Any station in there could be defining the center of any other market. Again our study is limited in the sense that we only have 54 stations. These are ARCO stations. ARCO in itself is different, cash only, things like that.

So we have a very select sample, so I hesitate in
sort of drawing other sample conclusions from ours, only to suggest that what we do have is a large number of stations, 54, every station within two miles of them, and we see these differences.

Would we see those differences if we were to take another station in mind? I would not expect to see that. I don't think ARCO is that different, but in terms of sort of where do you direct policy and things like that? The local market is specific to a seller.

MR. GIFFIN: One other very basic question about your study and actually all the work on density, and this may reflect my ignorance perhaps. When you talk about density and the number of stations that say are within a one and a half mile radius, does that refer to the number of different stations, or does it refer to the number of different independently owned stations?

In other words, if you have ten stations within a mile and a half, does it make a difference if two of those are ARCO stations and three of those are Exxon stations versus a situation where you have ten different brands or ten different independently owned stations?

MR. WADDELL: No. The result that you've seen and are in the paper are generated by -- I can't say ten stations within one and a half miles. One of those is the ARCO stations so you have nine others, so that would be a low
density station.

If there were 12 stations, the center one is the ARCO. There are 11 others, that's a mid level density, so we're discounting them.

If you were to control for say of the other nine, how many are majors? Of the other nine, how many of them are same brand? We don't see any significance.

MR. BECK TAYLOR: I've done work looking at price premia or price cost margins on different grades of gasoline as a function of the nature of competition, not just the level of competition, and we actually do observe looking at differences in prices as density increases or distance to closest competitor increases, whether or not that competitor, whether or not that make up of that market is same brand, other brand, other major brand independent brand.

I'm speaking of an economic inquiry piece that basically found that independents typically have a must larger price effect within those varying definitions of market competition than same brand or other major brand, and that's even controlling for ownership type, that is whether it's company op, lessee dealer, open dealer, jobber or whatever.

So preliminary evidence, at least one study that I know of, indicates that the nature of competition does matter, that when we start counting up stations within
markets, I'm not sure that we can always assume that those
stations are the same, that the flag they're flying may in
fact have an effect.

MS. BURTIS: Wouldn't that though be just captured
by the price of the other stations that you include in
your projection? I mean that --

MR. WADDELL: If particular brands are systematically
higher priced then, yes, but again I'm just using an average.

MS. BURTIS: If you have ten independents --

MS. DESANTI: Michelle, could you speak into the
microphone so the reporter can get everything?

MS. BURTIS: If you have ten independents, presumably
that price will be lower --

MS. DESANTI: You're going to have to get closer.

Move the microphone closer to you.

MS. BURTIS: How is that? -- Than then if you had
ten majors, for example, and so I mean in that sense he's
controlling for that type of nature of competition and
progression.

MR. WADDELL: Indirectly, it would be difficult to
interpret results.

MR. BECK TAYLOR: I think in Glenn's work, he is
taking an average of the stations within the market, but
certainly if the majority of those stations are independent
say, those prices will be lower and presumably controlling
for that, that may give him a better idea of price
elasticity.

But in the work I was referring to, we weren't
looking at other stations' prices. We were mainly just
looking at the type of competition, not necessarily the way
that competition translated into substitute prices.

MR. CHRIS TAYLOR: Question for Glenn and anyone else
who wants to respond. You looked at the retail prices in
these cities and saw the price variation. Did you look at
rack prices to see whether they showed with the same kind of
difference? And if not, do you want to speculate a little
bit about whether that would show up and if it did, what that
might mean?

MR. WADDELL: Yeah, we haven't looked at that in the
study, but sort of off the top of my head sort of stuff, rack
prices are difficult. In fact, they're very different so
speculating on that, does it matter, does that suggest why we
might see differences? I certainly think it would.

In particular, you can look at rack prices in LA and
have them be 20 cents lower than rack prices in San Diego.
You look a little more carefully, you would recognize however
unbranded rack prices in San Diego are only two cents
higher.

I think there's a story to be told with respect to
the arbitrage going on, and when you recognize jobbers are
able to pick up unbranded gasoline in Los Angeles, drive it to San Diego, there's a mechanism there by which there's an arbitrage. Jobbers cannot pick up branded gasoline in Los Angeles and drive it to San Diego.

So there's an explanation or at least a story to be told for why you see this persistent differences in rack prices upward of 20 cents for the branded rack and 1.7 and two cents for unbranded, two cents is pretty close to the transportation cost.

MS. DESANTI: Let me ask about the hyper markets, and my understanding is that at present, most hyper markets rely on traditional gasoline wholesalers for their supplies, so please let me know if that's not correct, but on that assumption, given the rapid entry and growth of hyper markets in some areas at least, should we expect to see them becoming less dependent on wholesale distributors for their gasoline?

I believe, Tom, you were making a point about their increasing reliance on supplies that are from the spot market and may be more volatile therefore and are we going to start observing hyper marketers purchasing supplies directly from refineries?

DR. HOGARTY: My understanding is that they already go directly from refiner to hyper market or they already have contractual arrangements, and I think that the role of the middleman, the jobber, the wholesaler, whatever, would be

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relatively small. That's my understanding. Maybe Michelle --

MS. BURTIS: Actually that was my understanding as
well. I think it depends on where, for example, the Costco
is, and they generally set up some sort of contract with it's
my understanding both major and non major refiners.

MR. DAVIS: They already have agreements with both
Sunoco and Murphy and I'm not sure what others they may have,
and that's Wal-Mart in particular.

MS. DESANTI: So if those are long-term contracts,
then are they less susceptible to price volatility?

MR. DAVIS: It would seem to me that would undercut
the volatility that you would certainly see from the spot
markets. As to other types, I don't know.

MS. BURTIS: I don't know what the contracts are, but
most contracts in the oil industry are usually based off of
some sport market, and I don't know if that's going to help.

DR. HOGARTY: I would think that if there's a
contract between say Murphy and Wal-Mart, that Murphy really
would be characterized as an unbranded rack price, very
closely correlated with the spot price, and I would expect it
to be more volatile than a prominently named rack price.

MR. CHRIS TAYLOR: Just correct me if I'm wrong, my
understanding with Wal-Mart anyway is that they have
basically contracted with Sunoco, Murphy and DeSoro to
actually run the stations.
MR. DAVIS: Yes.

MR. CHRIS TAYLOR: Now Sam's, separate division of Wal-Mart, actually has a different arrangement, but on the East Coast Sunoco basically runs the Wal-Mart stations, and in the midwest it's Murphy, and on the West Coast it's DeSoro, so at least in that sense, they're sort of vertically integrated.

MS. BURTIS: Well, do they get the profits though from the Costco?

MR. CHRIS TAYLOR: Well, I think Costco may be a different story in the sense --

MS. BURTIS: I'm sorry, Wal-Mart.

MR. CHRIS TAYLOR: Wal-Mart I think -- I don't know the exact contractual arrangement, but basically Wal-Mart approaches those companies and says, We're building a new store, would you like to put a gas station on our parking lot.

And so I don't know exactly what the arrangements are in terms of what those companies pay to Wal-Mart, but in effect Wal-Mart is offering them a site.

MS. BURTIS: Which is different from the Costco.

MR. CHRIS TAYLOR: Yes, yes. I guess I had a question for Neal sort of coming out of your presentation, if you could just sort of summarize. You had some charts that looked at refining and marketing in major and non major, and

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correct me if I'm wrong, but it seemed to be suggesting that in refining the majors, redefined, seemed to have a relatively constant, maybe slightly dropping share of refining, and then on marketing the majors seemed to be having a dropping, a decreasing in share of marketing over time.

MR. DAVIS: If I recall correctly, the numbers were declining to I think around 60 percent in '97 or that might have been what the '98 percent coverage of U.S. refining capacity of the majors would have been if we hadn't brought in the non vertically integrated companies.

Since then it's been I think it was 87 percent in '99 and it's down to 85 percent in 2000, and those numbers -- I should say that we brought out portfolios with 2000 with the 2000 data after I did the study which is why it stopped in '99, but I know that their retail outlet numbers are declining, but the sales were increasing.

I haven't actually looked at what their market share is of sales, but certainly can pretty easily calculate it. It's even among the publicly released data.

MS. DESANTI: I have a question about hyper markets. It seems like hyper markets have come in, and in a relatively short space of time, a little more than three years, they've captured 3.3 percent of the retail market nationwide, even though they only account for 1 percent of retail outlets, and
I'm wondering what factors contribute to this growth and what factors may limit it.

Tom has mentioned some factors that may limit the growth. How do the rest of you see the role of hyper markets as it currently is and as it's going to be expanding?

MR. BECK TAYLOR: I think hyper markets are an interesting phenomena in the market. As an economist, I kind of view it as, Okay, Wal-Mart has this piece of land out in a parking lot that's generally not used. They're very seldomly at capacity, so at zero opportunity cost essentially they have this opportunity to market a product that is complementary with every other product ever known to man.

And so I think it was such a natural evolution in the market that I'm surprised it kind of took so long for some of these large retail chains, wholesale chains like Sam's and Wal-Mart to get into the business.

Just anecdotally in talking with jobbers throughout the country, my understanding is that -- their understanding or their perception is that while you have seen this kind of ramp up in market share by hyper markets, the general understanding among jobbers is that that has leveled off and that in some sense -- and this is market specific, that they're not as worried as they used to be, though I will tell you that if you speak with jobbers, this is the number 1 concern in the industry right now, and that is competing

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effectively with these hyper markets who are at times pricing product five to eight cents below rack. It's pretty hard to compete at that point.

So I would just say anecdotally speaking with jobbers across the country, it's a concern, but their perception is that once this kind of ramp up has been achieved, the market may be fairly mature at this point, and you may not see a whole lot -- again market specific a whole lot of change in the way hyper markets are doing business, but again that's all anecdotal.

MS. BURTIS: There were some figures in one of the recent NPN fact books, and I think they predicted in like five years, they could be 8 percent of the market. I could be wrong about those exact numbers but it was fairly impressive.

DR. HOGARTY: I wrote a letter to the editor of Oil and Gas Journal online criticizing that prediction, and aside from the land zoning issue, I think that the reason it will fail, that is I don't think they'll go to 8 percent because the convenience stores and the other competitors they face are much tougher than the hyper markets accounted in Europe.

The hyper markets conquered Europe easily because they faced weak retail competitors. I think the independent marketers, I'll take Sheetz as an example, are much tougher birds to tackle, and I think that even the major refiners,
through the use of zone pricing, which is becoming more and more ubiquitous, have the perfect answer, the perfect defense to the hyper market phenomena.

If the hyper market is limited in its locations, well, then, set low prices at those stations within some reasonable distance, a mile and a half or so, of the hyper market and don't worry about the competition elsewhere. That means that the hyper market will have a tougher time gaining market share unless it can draw customers from a very wide area.

MS. DESANTI: Can you speak a little more about zone pricing and define that for the record, Tom, and then we've all heard quite a bit about zone pricing and it might be good to discuss this.

DR. HOGARTY: In the land of the blind as they say, the one eyed man is king. I know a few things about zone pricing but very little. What little I know is that it's pretty widespread, and the zones tend to be numerous, and it's a phenomenon that always should have existed, if it did not.

I think it goes back some years in the West Coast -- probably 50 years ago they had it on the West Coast, and it's been in some other places, but it starts from the presumption that, as Glenn emphasized, each market can be local, and within each local market, any given station may experience a
period of distress from new highway construction or just the
opening of a new tough competitor nearby.

And whoever is the supplier to that station has to
calculate the welfare of his customer. After all, the station
dealer or marketer is the supplier's customer, and if that
customer of his faces new tough competition or if it
confronts highway construction or some other disruption to
business, it has to give a price break.

Correspondingly, that supplier may have other
customers who have a very advantageous location, and he feels
correctly that the traffic will bear a higher price in that
area. Just as some consumers are willing to pay more, so
wholesale customers would be willing to pay more if they had
a favorable location and a very good business.

And beginning with the phenomenon of adjusting prices
downward to protect threatened competitors, you eventually
come to the phenomena where they can adjust prices upward to
get more revenue out of the most favorite competitors, and
you get large differences in the prices at the wholesale
level, the delivered prices especially.

It would be a system that would make sense both from
the standpoint of the retailer and the supplier, and hence
it's a system that should have become prevalent years ago,
and if it was not, it's just a belated discovery.

MS. DESANTI: Beck, did you have observations on
MR. BECK TAYLOR: No.

MR. GIFFIN: I have a question to try to put some of these pieces together. This whole topic that we're looking over these two days is in some ways like one of those 1,000 piece jigsaw puzzles, and it takes you forever to put together.

Just to take a couple pieces we've heard this morning, we've heard from Neal that there's a trend toward fewer gasoline stations, fewer stations, higher volume, different formats. We also heard that we're seeing a greater representation of station owned by non integrated firms and correspondingly a lesser role of the traditional majors.

Then we heard from Glenn about station density, so if you put those two together, that might suggest well, gee, if we're seeing a trend toward fewer stations and station density makes a difference, that it might not be so good if you look at those two pieces for prices overall in the long run.

Then we heard from Tom about this trend toward more independent marketers, different marketing formats, and that those different kinds of marketers have a big impact, so perhaps the increasing share of those kinds of marketers coupled with the significance that they bring sort of goes in the opposite direction and has a positive overall

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impact on retail pricing.

And I just wondered -- I know this is unfair to ask you to kind of speculate a little bit, but nevertheless I'm going to go ahead and ask just that, if anybody who is willing to take a shot at maybe predicting what the whole picture would look like or at least that little part of the picture might look at when we get finished putting all these pieces together.

MS. BURTIS: Well, I can I guess start by saying the decline in the number of stations doesn't -- I don't think has ever really been perceived as a negative thing in terms of competition or what the consumer sees because a lot of those stations were just outmoded and outdated and little, and they were high cost operations that should have gone out of business.

And clearly the fact that there are all these new stations, these new formats is an overall good thing for the consumer, and I think that we've seen it. You can just look at average prices over the last ten years, they may be more volatile but they're generally lower than they've been, so in terms of retail competition, it seems like it's flourishing.

MS. DESANTI: Beck?

MR. BECK TAYLOR: I think I share the same opinion I think as Michelle, and that is that to the consumer, retail markets look pretty darn good right now, and I think that's...
not certainly a function of the exit out of the market. That's a function of both the quantity and type of competition that Professor Hogarty talked about.

Americans are enjoying, both on a historical level and on a world level, very low gas prices in real terms certainly, and so I think the outlook looks good, if you don't just look at prices about but you consider the whole consumer welfare picture here, which has to include -- as you know, I mean, as was pointed out earlier, these aren't just gas stations anymore. These are C stores. This is the C store industry now that the consumer for the most part is being served.

The reason why you see volumes going up at fewer stations is because the consumer is getting a more varied shopping experience. They have more opportunities to shop now at C stores. C stores are now playing in the same markets as other grocery distributors, and so I think that the consumer for the most part is enjoying a nice market right now.

What the consumer can expect in the future is going to be largely dependent upon certainly what happens to the world oil price, but because this particular conference is paying more attention to local issues, I think the hyper markets and how they play out, I happen to share Professor Hogarty's opinion that hyper markets have kind of hit their
ceiling in terms of volume because they can't compete with the Sheetz and the Wawas of the world.

So I think -- but certainly the consumer is going to be impacted by what eventually happens to the hyper market, but I would say that the future looks fairly good outside of the increased volatility in prices for the consumer, and as Professor Hogarty mentioned, increased volatility may be just the price we pay for lower prices.

MS. DESANTI: All right. I think this is a good point to take our break. We'll start again around 11, and finish up from there. Thank you.

(Break in the proceedings.)

MS. DESANTI: Let's start again, please. Now, we're going back to two more presentations, and Beck Taylor, Professor Beck Taylor, will begin.

MR. BECK TAYLOR: I'm decided to be low toned today, and when I saw the problems that we were having earlier with the Power Point today, I was kind of relieved that I was, so please forgive me. Okay.

As the title of my paper indicates, I'm going to be looking at this issue of open supply. I will acknowledge also the contributions of Jack Barron and John Umbeck, Purdue University, on this paper.

I would also add the caveat that this paper is preliminarily and that I would request that it not be cited
or quoted in any way until the final version is released, but that being said, I will give permission to the organization to go ahead and post the paper on the web site as long as that's made clear.

So will open supply lower retail gasoline prices? I don't know exactly what the audience make up is here, but my guess is that half of you are on kind of the consumer side and half of you are on the supply side. I'm going to make exactly half of you walk out of here mad at me for sure at the end of this presentation.

But basically what I'm trying to do in this piece of research is look at the major claim of proponents of open supply, and try to -- obviously the best test would be to basically look at a market area where open supply exists and comes into play and look at prices before and after, and obviously we can't do that.

So I ask a intuitive question, if the proponents of open supply claim that those retailers with the most flexibility and supply options are going to -- who are generally able to buy rack either from jobber or from some other source, if they're able to lower prices, then we ought to observe controlling for station level and market characteristics, stations who are direct supplied from refiners having higher prices or at least the same prices as stations that are jobber supplied, and so I'm just kind of

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going out in the LA area and asking that very simple question.

So just by way of introduction, the contractual relationships between refiners and lessee dealers as you know is a constant issue. What's interesting about these relationships is while the lessee dealers contract with refiners for equipment, station, et cetera, the supply contract generally states, as you know, that dealers will receive supplies of gasoline at dealer tank wagon DTW price, which are typically, except for cases of inversion, higher than rack prices both brand and unbranded rack.

So basically I'm looking at the distribution of gasoline to the consumer via either direct supply, jobber or supply or open supply. Direct supply I'm defining here as direct from the refiner to a variety of station types, either company operated stations, vertically integrated systems lessee dealer stations or open dealers that happen to contract with a refiner for their particular gasoline.

We know of course the distributors or often what we call jobbers also have those options. That is, jobbers can supply to their own company operated station. They can supply to other lessee dealers stations or to open dealer stations.

What is being lobbied for is that lessee dealers be able to buy at rack from jobbers rather than paying the higher

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DTW price, so basically the relevant prices we're looking for are branded and unbranded rack and the typically higher dealer tank wagon prices or what I'll refer to as the DTW prices.

So what are the arguments for open supply? This is generally argued in both litigation and legislation or proposed legislation. Claims of antitrust violation with regard to either price discrimination or predatory pricing or the breaking of unfair competition laws are generally the claims made.

And the major claim that I want to focus on by proponents of open supply is that if dealers have the right to purchase gasoline from any wholesaler at the lowest price possible, that is they're able to shop around essentially for the lowest wholesale price, then dealers will pass on these savings to consumers through lower street prices. That's the general argument that's made.

And from the Hogarty report from 1987 on open supply, I found this particular quote, which I think outside of some bad terms I think that are used, really identifies the main sentiment of dealers here, and that is what Bill Ligon says: "What we are upset about though is that the major oil companies are raping the consumer by about 15 to 20 cents per gallon in the difference between dealer tank wagon and the unbranded rack. If dealers got the same break as the open dealers and the jobbers, then they would pass on to the
consumers all the cost cuts they could manage."

That's what we're trying to test in this paper. Clearly we can't do that because we don't observe open supply, but what we can ask is, Do we see systematic differences in the street prices at stations who are direct supplied by refiners or supplied via jobber controlling for market and station level characteristics?

Hogarty, et al., I think provides good explanations as to why we might not observe open supply or some economic reasons why open supply might be a bad idea. Those considerations include quality control, free-rider problems, are we going to allow dealers to free ride off the brand name of that particular supplier or refiner and not have to pay the corresponding rents to the refiner, and then just basic contractual issues, How does this fit into the basic lessee contract, lease contract that is signed?

Those are all important issues, but I sidestepped those and really asked a more basic question, and that is, controlling for station and market level differences across stations, do we actually observe different prices at stations that vary in their source of supply?

And so I estimate a model where I observe the price at station I times T and estimate that as a function of whether or not the station is direct supplied or not. Obviously if they're not direct supplied, I'm assuming they're
jobber supplied, and in some other matrix $X$ of station and market level characteristics.

My data, which I'll talk about here in just a second, our panel, that is a longitudinal set of data across space and across time so I use an air components model, and the nice thing about the air components model recognizes the dependence of air in terms of across time at any given station, is I can use a variety of different estimators to estimate the impact of alpha one, that is this effect of direct supply kind of addressing different questions at the same time, and I think you'll see what I mean here when I go on.

But other control variables that we want to consider, other than the supply source of the particular gasoline, are brand affiliation, market structure, and market structure is generally measured by density, the number of other competitors within a particular market area, and I also use another measure that Glenn didn't use in his, and that is distance to closer competitor, are they right on top or are they down the street, et cetera?

Station services, what does the station look like, because that could in large part reflect the cost of operation of the station? Do they have a C store, car wash, repair services, pay at the pump capability, which may in fact proxy the technology, et cetera.

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I have Kahn level fixed effects. I do have data across several countries in my data set, and I also controlled for time explicitly.

So the three what I consider to be -- and I hope I convince you of this, the three importance questions we ask, Suppose we have a panel of prices in station and market characteristics, across the panel do we observe different prices at jobber and direct supplied stations, other things being equal?

So here I want to basically capture the entire panel, all the observations on my stations across all the time periods for which I have those observations, and here I use basically an OLS estimator that's controlling for this non independence of errors that we observe in panel data.

The second question I ask is if we examine only those stations that switch from one source of supply to the other, so instead of looking at the entire cross section, maybe I just pick those out that make the switch, what happens to prices after that switch is completed? And for that particular question I used what is often called the "within" or fix effects estimator within this particular panel.

Then finally, do we observe different prices across similar stations as a function of supply sources in a purely cross-sectional context? That is, for every single station, if I observe that station for four years, maybe I just

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average prices across those four years for each station and then run a purely cross-sectional estimation, okay, so a variety of estimates are here but it turns out my results are fairly robust.

So my data consists of the marriage of two different data sets. One is the Whitney-Leigh census surveys purportedly every gasoline station in the five Kahn LA. Basin area, and here we're talking about more than 4,000 stations per year from 1992 to 1995.

From these particular surveys we get station location. We got addresses, and then we send it on the a GSI software system and plotted it longitude latitude so we can get a picture of the market and brand affiliation, and the key issue we're interested in is source of supply.

I married that data said with the LA Whitney-Leigh price surveys from 1992 to 1995, and this is an admitted non random sample from the census surveys that record individual prices at changes including cash-only prices, regular and premium unleaded prices. I then use also volume weighted average self-service and volume average station prices as well, so I'm getting a sense of differences within grade and then differences across grades and then differences at the station in general which would include full service as well.

So if you're going to buy any of the results I'm going to give you today, I need to convince you that this
particular sample is fairly representative of the market itself, and I hope to do that here in a second, but just kind of interestingly, if being jobber supplied is so much better in the sense that we can serve the consumer so much better and maybe even attract market share via lower prices and maybe even increase profits, we should see a wholesale switch in the market maybe from direct to jobber supply.

During my sample period, '92 to '96 -- actually the price surveys only go through '95 but I have the census for '96, we do see a slight decline in the proportion of stations in Los Angeles, about a .5 percent decrease, and depending on your perspective, that may be either a large decrease or a small decrease. I'm not sure, but just anecdotally we do see this decrease in the proportion of the direct supplied stations.

Concerning the representative nature of the sample, these are the average station characteristics in my price survey data compared with these same variables across the entire census, and this table is in the paper, but I would argue that it's a fairly representative sample.

If you look across all of the particular variables that I'm including in my model, there are a lot of similarities between the sample stations for which I have prices and the census surveys that Whitney-Leigh collected so I would argue that it's a fairly representative, non random

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So if I ask one of my students to go out and do this particular analysis, I'm sure I would get a table that looks something like this, that is let's just go out and compare average prices. On the left I have major brand, and for this particular paper, major is really kind of Exxon/Mobil, Shell, ARCO, Unocal, the majors that we kind of normally consider majors. All others are considered non major or independent.

If we just observe prices on regular unleaded gasoline by year, what we see is that in fact jobber supplied stations are consistently higher priced than direct supplied stations. Now, remember the claim for open supply is that if there's more flexibility in terms of obtaining supplies and we're able to shop around for the local self costs or we're able to get direct from the rack instead of having to be DTW, that in fact retail prices might fall.

And they may very well do that, but if we just went out and took a survey of stations and asked, Are you direct or are you jobber supplied, we see jobber supplied stations consistently pricing higher.

Now, I would take this particular table from my student and I would say, That's all fine and dandy but you have control -- maybe jobber stations are different. Maybe jobber supplied stations look different. Maybe they locate differently. Maybe they're in different markets. That might
be able to explain a way a lot of these differences.

So obviously that leads us to the regression analysis. I apologize here for this table, but these are the results from my estimation of that price equation that I mentioned earlier. Here we're looking specifically at self serve regular unleaded prices, and so from these price surveys of more than 700 stations that I was speaking of earlier, so my dependent variable here is the self-service regular unleaded price, I have three different estimation techniques I mentioned.

The OLS is basically using the entire cross-section. I am correcting there for the correlation of errors across stations. The fixed effects only captures the effect of switching. If I explicitly include variables for every given station in the market, essentially all I'm capturing here are changes in these variables. In particular for the direct supplied variable, I'm only capturing stations that either move from jobber to direct or direct to jobber.

Then finally the between effects estimator captures the cross-section of averages, so what stories can we take from these particular results?

Well, it turns out that the table that I just showed you, the results from that table also hold when controlling for a different market and station level characteristics.

That is controlling for things like competition in the
market, what kinds of ancillary services the station provides via car wash, repair services, et cetera, brand effects and also Kahn level and time effects.

We in fact see that using the entire cross-section for our regular unleaded prices, direct supplied stations generally have about a 2.7 cent lower price, other things equal, okay?

Again that's contrary to the claims of open supply. Open supply proponents would say that if stations are given the opportunity to have a more flexible supply route, then in fact prices might fall, and again I'm not refuting that particular statement because I can't, but if we just went out and looked at stations that differ with respect to supply source, they do look different, and it's opposite what you would expect if you were a proponent of open supply.

The fixed effect, now this is interesting, again this is capturing only those stations that are changing. Even if we look at only those stations that are changing from jobber to direct, we also see a lower price once they've switched from jobber to direct, okay?

Again that kind of flies in the face of some of the claims made by supporters of open supply, and finally just looking at the cross-section of averages, we see that on average direct supplied stations are about 3.3 cents lower on average.

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Now, just kind of looking at some of these other variables because I think they tell important stories with respect to the conversation we had earlier, that is, if we look at the distance to the closest competitors in miles, so we're just taking the nearest stations and asking as it gets farther away what happens to prices, as it gets farther away, prices go up. That's not surprising.

As the number of competitors in the one mile radius, this market density measure that we've been talking about this morning -- as that increases, what happens to prices? Well, interestingly in the OLS and in the between effects estimates we see a significant decrease in price, which would certainly correspond to Glenn's predictions with respect to elasticities.

But the fixed effects estimator shows a positive effect on price, and that seems to kind of contradict intuition until you realize what the fixed effects estimator is actually measuring. You're measuring only markets here for which there was entry.

Why is there entry? The competition theory would suggest there's entry because prices are higher, and profitability is higher generally in this case. So in fact that particular result might be able -- although it might be explained just by the fixed nature of the fixed price estimator.

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Interestingly, stations with car washes, repair
services, convenience stores, full service -- and full
service typically don't price their product any differently
than stations that don't have those services, but when you
add one of those services, your prices go up, and that kind
of is what you would expect. If you're adding a particular
service, you're now offering the consumer more, you might in
fact get more market power and it will allow you to increase
your prices.

This is self-service regular unleaded. It turns out
that this particular result holds for all four of the prices
that I examined. Here's the table for self-service premium
unleaded prices. Again, you see that the effect of being
direct supplied, other things equal, other characteristics
equal, is a significantly lower price. We see direct
supplied stations pricing their product lower than jobber
supplied stations, and again all these other results are
fairly consistent with the ones that I just showed you.

If we look just briefly at the average -- volume
weighted average self-service price, again we see that direct
supplied stations are lower from between about .8 cents to
about 2.4 cents.

And I'll say, as I hope any good researcher would do,
I tried to break these results. I mean, to be really honest
with you, I try to enter into my research with an
objectivity, but I didn't like these results, and it wasn't because I'm either a proponent or against open supply. It's just I would have expected a null result. I would have expected zero, that other things equal, there was no difference between the two, but instead I got this very robust result that in fact direct supplied stations are lower.

So I kind of started trying to think about reasons why that might be, why am I observing this higher price at jobber supplied stations? So I started thinking maybe there's just something going on here, time coincidence.

If real prices are rising over time and we observe that direct supplied stations are decreasing over time, maybe I'm just picking up this increase in price, that is, as more and more jobber supplied stations are coming in at the expense of direct supplied, maybe I'm just picking up this increase in price, but I've controlled for time in my regression, so any difference between direct and jobber supplied prices is probably not likely due to changes in price that correspond with changes in time.

Secondly, you can tell a nice story that refiners are just getting rid of high cost stations. That is, if we talk about zone pricing and you set kind of uniform zone prices, what stations are refiners going to be giving up? They're going to be giving up those stations that are high cost, high

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cost of supply, right, maybe because they're small volume. They have small tanks. They don't take an entire delivery tanker load.

These are more expensive stations to supply, so if you get rid of those, who's going to pick them up? Jobber supply -- jobbers are going to pick those up, and they're not nearly as nice as refiners are in terms of making special considerations for these special types of stations.

So it may be that we're just observing that refiners are getting rid of these high cost stations, and jobbers are picking them up, and that might be driving some of our results, and so I asked whether stations that switch different. That is, if you could tell a story that stations that switch from either source of supply to the other are random in some sense, then I would like my result a lot more.

But if you could make an argument that in fact stations are different that actually switch, then that might buy us our results to the extent that we don't include those differences in our model.

So I ran just quickly a low Logit model predicting the probability of switch, so here is the change in the odds ratio of switching to jobber supply, and here's the change in the odds ratio from -- to switching to direct supply. Now, I'll mention that in my price survey -- excuse me in my census survey data, that includes all 4,000 stations in the

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LA Basin area, about 120 switched to jobber supply, and about 20 switched to direct supply, okay?

But looking over all stations that either switched or didn't switch, notice that the only significant predictor of switching to jobber supply was volume. That is, as volume goes up -- this positive sign by the way be careful, this means you're .8 times more likely or one over .8 times less likely, so you're actually less likely here to switch, okay?

That kind of corresponds with the story I just said, right? Low volume stations, refiners are going to dump those, okay?

In terms of changing to direct supply, and here you need to qualify these results because I only had 20 stations do this, but convenience stores were significantly less likely to switch to direct supply. Full service stations were significantly less likely to change to direct supply, but notice I'm already controlling for those station characteristics in my previous model.

What I'm not controlling for here is total volume, okay, and the reason I didn't put those in my initial equation is because I was concerned about homogeneity. Are prices high because volumes are low or vice versa.

So in regression results that I'm not going to show you today, what I did is I included categorical variables that describe stations as being either low, medium or high.
Now, those particular categorical variables were significant predictors of price but did not change my result that showed that jobber supplied stations had significant higher prices other things constant.

So to conclude here, I would say that this is not necessarily -- my results certainly do not make the following statement: Open supply will raise prices instead of lower prices. In fact, my results don't even say that open supply will not lower prices.

All I'm simply trying to do is kind of go out into the market and say, Okay, let's look at source of supply and see how it matters, and what I think I've done is I've shown that it does matter, and interestingly it matters in the opposite direction of what a local of proponents of open supply think.

So I think that I'll leave it at that.

(Applause.)

MS. DESANTI: Thank you very much. Next we will hear from Michelle Burtis at LECG.

MS. BURTIS: My paper is actually sort of complementary to Beck's, so I guess that's why you guys put us one right after the other. It has to do with a variant of pass on and I'm looking at whether wholesale price changes are passed on to the retail level more or less depending on For The Record, Inc.
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whether or not those stations are vertically integrated, that
is whether or not they are owned by a refiner.

I originally got this idea because I was looking at a
particular market, a particular situation, in which the
wholesale prices were very, very stable for a long period of
time, a relatively long period of time, which was very
puzzling because as most people know, gasoline prices, oil
prices, tend to be very, very volatile.

And there are a number of things eventually that we
learned that contributed to that stability, but one of them
had to do with the level of retail competition, and again I
was looking at wholesale prices and noticing this stability,
and what I have learned is that there was a lack of retail
competition in this market, and the wholesalers and the
refiners who were setting the wholesale prices just didn't
have the incentive to be competitively aggressive because
they could reduce their wholesale price, but because the
retailers were not competing with each other very much, that
wholesale price wouldn't be passed on to them, and the
wholesaler then wouldn't gain any volume.

So it became apparent that it was a basic and maybe a
very obvious idea that led me to the idea of trying to
investigate what refiners, what wholesalers do to try to
influence the retail market.

And at this point I think it's important to note that
from a refiners's point of view, when they are operating in a market in which they have their presence or their product is distributed mostly through franchisees or through distributors, it is best for them when the retail market is operating as competitively as possible. They want the retail prices to be as close to competitive levels as possible because that's when they sell the most gasoline.

So I started thinking about the way that the refiners participate or the way that they can influence the retail market, and one very obvious way is they participate in it. That is, they integrate at the retail level, and they sell their own product through company operated stations where they set the retail price, and they earn the profits at retail.

When you look across refiners' sales, what you'll find is that they generally distribute their product through a variety of ways. They have vertically integrated outlets. That's what I call the companies op. They sell through dealers, and they sell through the distributors, and they also of course sell some product on the spot market.

And the reason that this mix historically -- nobody sells their -- I shouldn't say nobody, but refiners tend to have a mix of organizational forms through which they sell gasoline because each one of these different forms has its benefits but also its costs.

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And so if the only thing the refiners were interested in -- and there were no costs associated with it, if the only thing they were interested in was setting the retail price they would fully vertically integrate, but that's a very costly form of organization for them because there are thousands of retail gasoline stations.

They are geographically dispersed. It's very difficult to monitor them, and when you didn't have a residual claimant operating that little station somewhere out there in America, you don't -- you don't have the person operating the station with the incentives to provide the right kind of service to the customer, so this is the kind of -- this is the kind of forms that we observe, and it's generally true that refiners have a mix.

I can also show you that just in terms of the vertical -- vertically integrated outlets, it's over the last whatever that is, seven years, has been roughly the same.

Another way that refiners may have open to them now to influence the retail market came about with the Supreme Court's decision in Khan, and in that decision the Supreme Court -- well, prior to that decision, maximum resell price maintenance was per se illegal, and oil companies I know in particular were very, very reluctant to try to influence their dealer's prices.

In 1998 Khan was overturned or Khan overturned that
per se illegality, and refiners may now feel less constraint
in how they counsel their dealers to set retail prices.

I should say I have not seen any evidence in
contracts changing, and I don't personally know of any oil
companies changing their policies with respect to retail
prices, but it was a pretty significant decision, and a lot
of people paid attention to it in the industry, and it may
have had some effect on the way the refiners deal with their
dealers, and it also gives me an opportunity to test it, so
with that background, let me describe the basic idea of my
paper and the results.

One phenomena that people generally have talked about
now for about ten years is called the rockets and feathers
phenomena in this industry, and that is that when costs
increase, what you see is immediately or very, very quickly
you see a response upwards in gasoline prices. When costs
decrease, you don't see that same quick reduction in prices,
but you see it go down more like a feather as opposed to a
rocket, and there have been numerous studies over the years
that have tried to -- have debated whether this asymmetry
actually is present and have tried to come up with
explanations as to why it may exist.

At this point I would say nine out of ten papers have
found asymmetry, and nobody has really offered any kind of
economic model based on rational profit maximizing behavior

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that would explain why it exists.

It was interesting -- well, the idea was interesting

to me because it has -- it goes to how responsive retailers
are to changes in their costs, and so what I did is I looked

at that relationship, which I think is going to be right

here.

I looked at that relationship with a very simple

regression equation, and I split the data up into two -- the

first thing I did is I split it up into two periods, before

and after Khan, and I asked the question whether or not --

whether retail prices were more or less responsive on average

before Khan compared to after Khan, and I look at price

changes up separate from price changes down, and that last

variable in there is just stock variable. It seemed to me

once you put it in, it turns out it doesn't have that much

effect, but it's still in there.

So in the period prior to the Khan decision, what you

see, and this was my typo actually, a one cent increase in

DTW in the first month leads to a one cent increase at

retail, and a one cent decrease in DTW, that should be .6,

not .06, 6/10ths of a decrease at retail, and so you see this

asymmetry in the retail price response of 4/10ths of a cent,

and let me just back up one minute and describe my data.

It's monthly. It is a panel. It's by state. It is

from the DOE, and a couple caveats about the data. I think
we've heard numerous people here today, and I wholeheartedly agree with the idea that retail markets are certainly something less than a state, and a month is less or it's more time than one would want to really measure the quickness of the response, so you should think about those caveats when you look at the results.

I estimate the same model after the Khan decision, and what I find is a one cent increase in the DTW. Again you get a one cent increase at retail. The response to a decrease, however, is higher.

I estimated both of these models, including another month's worth of data so I could get additional time to allow the retail prices to respond. Prior to the Khan decision we still don't have full -- you don't get a cent for cent to the decrease. After the Khan decision you do.

I guess the other caveat I should say is there's no variable in these models that is measuring the effect of Khan, and again I'm saying this because I don't have any evidence that any oil company who has changed their contract with their dealers.

This is a very dynamic industry, and there are a lot of things that may have changed between these two periods, but clearly the responsiveness of retail prices have changed in the two periods. One thing that's happened over those two periods is the Khan decision, which is consistent with the
results.

The second thing that I did is I took the period prior to Khan, and I asked the question whether you have different amounts of responsiveness in retail price changes in markets where refiners are more or less vertically integrated.

And basically the idea is if refiners have a presence in the market, they are able to go in and set the competitive retail price, which then sets the example for the other stations that are competing around them, and it would be -- they are a competitive factor in the market that is helping to change the competitive landscape at retail.

And the model that I used to do this is similar to the first model. The only difference is I interact the amount of vertical integration in to both of my variables so that I can pick up what happens in markets where there's no vertical integration versus what happens when there is some vertical integration, and the difference in price response then becomes a function of the amount of vertical integration.

And basically these are the results, which probably nobody really wants to look at too much, and what I find -- first let me just say that within the data set on a state by state level, vertical integration varies from about zero to 46 percent, so for those markets where there is no vertical
integration, that is, there are no company operated stations, you still see this asymmetric price response, and you don't see prices retail prices falling as quickly or as much when wholesale prices are falling.

In the markets where you have the most vertical integration, what you see is less asymmetry, and you see about the same response to wholesale price increases as you do to wholesaler price decreases.

So basically the conclusion is the asymmetry is clearly not in the interest of the refiner. They are setting -- they are lowering their wholesale price to the retailers. They want that wholesale price reduction to be passed on to the consumers so that they can sell for gasoline.

To the extent that the asymmetry exists, to the extent that there's this feather effect coming down, what my results seem to indicate is that in those markets and in those time periods is the refiner is less able to influence what's going on in retail -- in the retail market.

I think it would be interesting, and I have not -- I don't have the data to test this, but asymmetry is always measured at various levels of the supply chain but, it sort of goes back to the original idea of how I got this idea for the paper. It would be interesting to see if there is the same sort of asymmetry at the wholesale level for those some
reasons.

That is, are the refiners less likely to lower their prices when there is not the possibility of getting the retail price reduction in response?

(Appause.)

MS. DESANTI: Thank you both. I think we would like to cover some territory on state laws and issues related to open supply such as Beck took us through but also issues related to vertical integration.

Let me start by asking Beck: In terms of the open supply issues that you've examined, comparing that to other statutes or restrictions that states sometimes put on retailers such as below cost pricing statutes, do you have any sense of whether open supply would have more or less of an effect, and what's your understanding of the effects of say below cost pricing statutes?

MR. BECK TAYLOR: My understanding of the below cost pricing statutes is fairly limited. What I do know is that those particular kinds of statutes, kind of drawing back on something we mentioned earlier, assume to be particularly binding in markets heavily saturated with the hyper market that we were talking about earlier.

I don't have any empirical data on the effect of those particular statutes on street level prices, I just don't have that, nor have I seen any studies. Maybe some of
the other members of the panel have.

With respect to open supply, I will tell you intuitively as an economist that if these dealers who are contractually obligated to pay a higher DTW prices are allowed to buy competitively, it would seem to me kind of just intuitively first guess that prices potentially would fall, and maybe that's the eye that I had going into the particular project, which is probably why I was so surprised at my result and also why I tried so hard to break the result, to see how robust it was, but I want to mention again that my particular study certainly does not assess the impact of open supply.

That study is yet to be done, and of course we need to see the passage of open supply legislation to do that, but what it does do is it simply says, Okay, if the claims of proponents of open supply are correct, that is that being able to buy a wholesale more competitively would lower street prices, therefore, increasing the welfare of consumers, can we go out in the market and actually observe differences in source of supply and attribute those differences in prices to that source of supply?

And of course as you saw in my results, I found that indeed there are differences controlling for stations, characteristics and market characteristics between stations who source their product through the refiner and those that
So I would say -- I would characterize my result as not necessarily refuting the claims of proponents of open supply but rather casting serious doubt on those claims. Now, I have yet to find systematic differences between open supply -- excuse me, direct supply and refiner or jobber supply stations that seem to have an impact on the difference in prices that I observed, but that does not mean that they aren't out there.

There may be some characteristics between the types of stations that I'm simply not picking up in my model, but to the extent that that heterogeneity is controlled for in the panel estimation techniques, I think it becomes less of an issue, but I would have to defer maybe to my colleagues to talk about the open supply versus below cost selling.

MS. DESANTI: Any other observations? Tom?

DR. HOGARTY: One observation, below cost selling, there have been a number of studies. Ron Johnson at Montana State did one recently. There were some earlier studies in various industries and government agency sponsored studies. I think they tend to show that low cost selling statutes, to the extent they have an effect at all, might have an impact on the order of one to two cents per gallon. There are below cost selling laws in quite a number of states and the enforcement varies, and the firms subject to them of
course vary.

Where they are potentially important, like in a state such as Florida or Georgia, big gas consuming states, the effect is to cause prices on average to be one to two cents per gallon higher than otherwise, and I recall one API study done some years ago which tried to identify the source of that one to two cents, and it turned out to be principally the chilling effect of the law on price cutting by aggressive marketers during a time when wholesale prices were trending downwards, which is consistent with some of the results Michelle was discussing.

That is, when wholesaler prices are going down because of the crude oil price collapse, for example, a below cost selling law will tend to inhibit the most aggressive retail price cutters from cutting as much and as fast as they otherwise would, and then when you average over the cycle and over the years, that comes out to a penny or two per gallon.

In respect to Beck's study, I noted that he had a number something like 2.7 cent differential, something like that, and it occurred to me that in a handful of states, we still have divorcement laws, and historically the estimates of those divorcement laws are varied.

Some investigators, John Umbeck in particular, tend to assign it a relatively low number. Other investigators like someone at Florida State come up with numbers like 3
cents a gallon, but to the extent divorcement forces replacement of refiner supplied station with jobber supplied, then Beck's results potentially at least might have implications for divorcement.

I think that a fellow Michael Vita at the Federal Trade Commission has studied divorcement, and I think he has an estimate in the 2 to 3 cent per gallon range so I think Beck's estimate might be consistent with Vita's in that extent.

MS. DESANTI: All right. Michelle.

MS. BURTIS: There was one other thing about the open supply issue. This is something that gets litigated a lot in the oil industry. The dealers are upset because they can't buy at the rack, and so they sue their supplier and they say, Look, this is how much money I could have made if only I could have made -- if I could have purchased at the rack.

And we have been in a position a couple of times -- the dealers don't buy. The rack price is not a price that is sold to dealers at. It is a price that is sold to distributors at. It's a price that you can purchase at it if you have a big truck, and you can come, and you can pick up the product, and you can drive it somewhere, and we have been -- and those distributors do that.

They come. They buy at the rack. They take the product, and then they resell it to dealers or they use it in
their own vertically integrated stations.

So the real comparison then should be the DTW price with the price that the distributors are then reselling the gasoline to those stations that they supply.

In a couple of instances, it's very difficult to get these contracts because you have to go and subpoena the distributors and everybody has a big -- that's terrible, but we have gotten some, and we have constructed the prices that the distributors sell to their dealers at, and they are dead on to the DTWs.

They are within a tenth of a cent, and they move the same way, and it is -- there's really in terms of the price that those particular -- anyway those dealers are getting, they got no advantage from being jobber supplied.

MS. DESANTI: All right. Any other observations?

MR. BECK TAYLOR: I would like for Professor Hogarty to maybe clarify something he said just because I'm curious with respect to interpreting my results.

DR. HOGARTY: Oh, okay.

MR. BECK TAYLOR: I think that my paper concluded that direct supplied stations typically price lower than jobber supplied stations, and I think I heard you say that that might be an argument in favor of divorcement?

DR. HOGARTY: Pardon me. A repeal of divorcement or against divorcement, that is to say, I was trying to say that
divorcement prohibits refiners from directly supplying their
own stations, their company operated stations, but to the
extent that the refiners have a lower price than the jobbers
and to the extent that divorcement as a practical matter
forces jobber supply.

MR. BECK TAYLOR: I wanted to make sure that was on
the record.

DR. HOGARTY: Oh, okay. I'm sorry. I misspoke. I'm sorry.

MS. DESANTI: I think Chris has a question.

MR. CHRIS TAYLOR: I wanted to go back a little bit
to this morning, but also it refers to the presentations this
afternoon or later this morning. When talking about Glenn's
paper this morning and the fact that they had the ability to
raise and lower prices at ARCO stations by two cents a
gallon, and my question to Glenn was: Did they see any
reaction in the competing stations?

MR. WADDELL: I don't know if this is unfortunate or
fortunate, I'm losing my voice.

If you were to posit the hypothesis that there would
be no response to exogenously imposed price changes, up,
down, what have you, we would not be able to refute it
essentially.

Now, it should be noted that for those of you who had
taken thought on those, the dates that I put up there, our

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experiment beginning February 8, the Tosco Refinery incident on the 23rd of February sent California gasoline prices up significantly. Now, a priori I would expect that to hinder a test, a proper test of that and that sort of hypothesis. If I were to impose a two cent higher price for a week on a particular station in Los Angeles or San Diego or where have you, and a couple days later the Tosco incident arrives, that above equilibrium -- quote unquote equilibrium price that we've imposed is no longer above the equilibrium. It's probably below equilibrium within a day or two, and maintaining that price for a few days there where it's actually now below the equilibrium price.

Now, for my study, that's a good thing. For our study and the intent of it initially, the fact that we have this large exogenous supply shock is a good thing for us in terms of measuring elasticity. Many would have thought we had something to do with that incident. That's exactly what you want to happen.

The second issue of do we see any sort of strategic interplay between stations in response followed sort of things, as of yet we have not been able to conclude we can see anything.

MR. CHRIS TAYLOR: I guess that was leading me to the more general question. In the sense that we have station level data or city level data by brand, if we were looking
for some kind of response, some kind of collusive response among the firms, and we're not lucky enough to have this kind of natural experiment where we can exogenously raise and lower prices and see if anybody responds, what should we be looking for in terms of providing various brands?

MS. BURTIS: What is your experiment?

MR. CHRIS TAYLOR: If we're not lucky enough to have this kind of experiment where we can vary prices and see if anybody responds, we just have in effect pricing in market by brand, what should we be looking for?

In Glenn's case it may be complicated by the Tosco fire but he has a pretty straightforward experiment, and that is we raise the price at ARCO and we see if anybody else responds, but if you're not lucky enough to have that, if we have just marketing pricing data by brand or not, what should we be looking for?

MS. BURTIS: One thing -- what you can't do I think is look at a set of prices and see that they all move together, for example, and conclude that there must be collusion, if that's sort of where you're going here.

It's very difficult to just look at some data and look at a set of prices and say, Aha, it's this or it's that, and I think that there's some tendency to do that on the part of some people. Look at these prices. They are all moving together. They're all moving in lockstep, and certainly from
an economist's point of view, that really does not tell you
anything because that's equally consistent with a very
competitive market as it is with a market where there may be
some sort of collusion going on.

DR. HOGARTY: One thing I think you may have to do is
go beyond the brand price data. If there were to be
collusion, it would probably be most likely within a given
brand. I agree with that, but it might be a subgroup within
that brand. As Michelle's statistics pointed out, a brand is
distributed through three or four channels, typically four.

Any conspiracy or collusive activity would most
likely be among let us say the marketers of a given brand or
the dealers of a given brand.

It's conceivable that there would be a possibility of
collusion among the refiners. Then you would have to go
across brands, but my suspicion and small amount of knowledge
of the collusion cases has been that collusion is more likely
among -- more or less homogeneous groups, such as all
marketers or all dealers than among any other.

So I don't think the brand data would get you very
far.

MR. BECK TAYLOR: I would just echo what Michelle
said, and that is certainly what we weren't looking for are
positive correlations on prices across time. That's
perfectly consistent and I would even argue is probably a
correct or explained correctly by a more competitive model.

It's my intuition that explicit collusion is one thing, tacit collusion another.

If one presents the hypothesis that tacit collusion is easier when information is less costly, then higher density markets may be -- you may observe more tacit collusions in those types of markets, but there's empirical evidence in work that I have done that in fact this higher density in fact lowers the dispersion of prices.

So I think that that's consistent with this kind of tacit collusion argument, but I would also just add as a personal opinion, this collusion that is often looked for I think is very difficult to achieve in these kinds of very competitive commodity markets that we're looking at, not that it doesn't occur, but it would seem to me that it would be very difficult to identify those incidents of collusion without doing what Professor Hogarty said in looking across broad groups of individuals.

Again, I maintain my hypothesis that these markets are local, and to the extent that that locality is determined by density and other common market characteristics, I think it's going to be difficult to kind of make a claim for collusion among smaller groups.

MR. WROBLEWSKI: Can I just clarify one thing? I want to make sure I understood it right. You said that in
local markets that have higher density, you have less -- you may have a lower price because you have more competitors, but that you have -- there's less variability in that market among the prices that would then be at the lower level.

MR. BECK TAYLOR: Yes, that's correct.

MR. WROBLEWSKI: Okay.

MR. BECK TAYLOR: In Professor Waddell's conclusions, we observe higher density markets having lower prices, and it's also true there's less price dispersion, and that's entirely consistent with a search cost based model consumer behavior. It could be used as a story obviously for east of tacit collusion and things like that, but it's entirely consistent with a competitive based model as well.

MS. DESANTI: Jim, you had a question.

MR. GIFFIN: I wanted to come back to divorcement for a moment. We've heard reference to the studies that show that divorcement laws like the one in Maryland could have some adverse effects on consumers, and Michelle, your hypotheses about refiners' ability to control what their marketers are doing with retail pricing sort of fits in with that.

I'm wondering, given your results, looking at the pre and post Khan period, whether you would expect that if somebody were to look at divorcement again in perhaps a similar way to what you did, if one might find that the effects of divorcement legislation are somewhat mitigated by
the Khan decision in light of the refiners' greater ability
to control what their retailers are doing in price?

MS. BURTIS: You're suggesting that it would be okay
now to not allow company ops because refiners now have the
ability to more directly influence retail prices through Khan
or after Khan?

I just want to -- I said this twice, and I'll say it
again because I don't really have any evidence that Khan has
really made -- there's really been a policy change since
Khan. Throughout the last 15 years I've worked with a lot of
oil companies, and I can tell you Khan may -- or not Khan,
but prior to Khan, these people did not want to tell their
dealers anything about setting prices.

They encouraged them to understand that when you
lowered price, you could sell more, but the decision as to
what retail price got charged -- and that was so ingrained in
that culture, it's somewhat difficult for me to believe that
Khan actually had an impact, even though the results suggest
that something changed post Khan.

So there are a lot of good reasons, aside from this
also, that refiners should have the ability to have some
vertically integrated stations. It's a good way for them to
monitor what's going on in the market. It's a good way for
them to test various types of marketing strategies, so my
inclination is to disagree with that and to say that, you
know, just because there's Kahn, I certainly wouldn't say that divorcement is okay.

MR. GIFFIN: Just to clarify. I certainly didn't mean to suggest by the question that divorcement legislation is now okay.

MS. BURTIS: Okay.

MR. GIFFIN: And to put it another way, I guess that what I was suggesting is that perhaps the results of your study shed some more light on why it is that divorcement legislation could have adverse effects --

MS. BURTIS: Right.

MR. GIFFIN: -- the phenomena to the extent to which providers can affect retail pricing.

MS. BURTIS: I like that interpretation better.

MS. DESANTI: Michelle, I would like to follow up with some questions about vertical integration and just do some compare and contrast. Last August we had Justine Hastings giving presentations suggesting that vertical integration in some cases can lead to higher prices, and I'm wondering if you're familiar with that work and if you have any sense of the variation in what you were looking at that could speak to the differences in results.

MS. BURTIS: You know I've read that paper, I'm generally familiar with it. That model -- there's two things about it that are very different. First, it is not directed
at retail prices. It is directed towards unbranded rack
prices, and then the hypothesis that those authors were
looking at is, Would a refiner have the incentive after they
vertically integrate to raise the unbranded rack price
because they would then not only get the profits from the
higher unbranded rack price, but presumably if they're
vertically integrated, they get some retail profits as well
as those independent people who are buying from them at the
rack are at a competitive disadvantage.

It says nothing about retail prices, which it -- I
guess what I'm trying to say is it very well may be the case
that when a refiner becomes vertically integrated, it raises
the unbranded rack price, or it may be. However, there's no
connection to what happens at retail.

There may be very good reasons, for example, for the
unbranded rack price to be higher than it was prior. And
then a problem with that particular paper is that they are
not measuring true vertical integration. They are measuring
some variant of branded presence. They're adding together
vertically integrated stations with lessee stations, which
about doubles the amount of what they call vertically
integrated.

So it's somewhat muddled because what they're saying
is on the one hand the refiners are going to raise this
unbranded rack price, so that they're going to get more at
retail, but that variable that they've got in there, they're really not getting those retail profits. At most they're getting half of them, and so that's some sort of conceptual problem with the study.

Let's say -- let's change the hypothesis to be more in line with what their empirical model really is. Does it make sense for the refiner to raise the unbranded rack price if they have more of a lessee plus vertically integrated presence in the market?

Again very good reason why that might happen. I mean, those dealers are their customers. They are distributing their product. They may want to protect those dealers from the lower unbranded rack price. Again it says nothing whether or not what happens to the retail price.

So I guess those are my two general comments about that.

MS. DESANTTI: Are there other questions?

MR. CHRIS TAYLOR: I guess I could ask Beck a little bit about what he thinks his results say in terms of vertical integration and could we interpret your results to say that jobber supplied stations, there might be some inefficiency or double marginalization that might be going on, or is that pushing your results too far?

MR. BECK TAYLOR: The marginalization could probably only occur at company operated jobber stations, all right,
because jobbers can company operate stations just like a
refiner, and that's only a small subset of the total jobber
supplied stations.

With respect to vertical integration and how it
pertains to my study, I really -- I don't have any answer
right now. I would have to think about that. I would have
hate to speculate.

MR. CHRIS TAYLOR: I guess just for the record, you
might get double marginalization in those stations where the
jobber supplies someone else because if the jobber was
vertically integrated, they wouldn't mark it up.

MR. BECK TAYLOR: That's true. That's true. You're
correct.

MR. CHRIS TAYLOR: I guess another clarifying
question. You talked a little bit about inversions in DTW
versus rack. Did you check for that in your data, or is that
something especially given it's California?

MR. BECK TAYLOR: Yeah. It's not something that I
checked for in my data though. I believe I have some
measures of DTW and rack prices over that same time period,
though they're not in the same data set, so I could certainly
look at inversions and probably something I should do.
Inversions occur when prices are extremely volatile and
moving around quite a bit.

I would be surprised if the rack were above DTW for a

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significant amount of time to allow for the kinds of robust
results I found, but it's a good point.

MS. DESANTI: Well, I would like to give you all the
opportunity if you have any final observations you want to
make.

And if not, thank you all very much for your
participation. We really appreciate all the work that you've
done and thoughts you've shared with us this morning and your
very thoughtful presentations. I would like everyone to join
me in thanking our panelists.

(Applause.)

(Whereupon, at 12:20 p.m., the conference was
concluded.)

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CERTIFICATION OF REPORTER

CASE TITLE: PUBLIC CONFERENCE: FACTORS THAT AFFECT PRICES OF REFINED PETROLEUM PRODUCTS
CONFERENCE DATE: MAY 9, 2002

I HEREBY CERTIFY that the transcript contained herein is a full and accurate transcript of the notes taken by me at the hearing on the above cause before the FEDERAL TRADE COMMISSION to the best of my knowledge and belief.

DATED: MAY 16, 2002

DEBRA L. MAHEUX

CERTIFICATION OF PROOFREADER

I HEREBY CERTIFY that I proofread the transcript for accuracy in spelling, hyphenation, punctuation and format.

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