

FEDERAL TRADE COMMISSION

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21
22
23
24
25

I N D E X

PRESENTATION BY:	PAGE:
NEAL DAVIS	5
THOMAS F. HOGARTY	15
GLENN WADDELL	26
BECK TAYLOR	46
MICHELLE BURTIS	

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PUBLIC CONFERENCE ON:)
)
FACTORS THAT AFFECT PRICES) P022105
OF REFINED PETROLEUM PRODUCTS.) Day 2
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MAY 9, 2002

Room 432
Federal Trade Commission
6th Street and Pennsylvania Ave., NW

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

1 PANEL ON: MARKETING AND DISTRIBUTION ISSUES

2

3

4 PANEL MEMBERS:

5 NEAL DAVIS, Industry Economist, Energy Information
6 Administration, US DOE

7 THOMAS F. HOGARTY, Adjunct Professor of Economics,
8 Virginia Polytechnic Institute

9 GLENN WADDELL, Professor of Economics, University of
10 Oregon

11 MICHELLE M. BURTIS, Principal, LECG, LLC

12 BECK TAYLOR, W.H. Smith Professor of Economics,
13 Baylor University

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1 P R O C E E D I N G S

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

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

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

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

22 The first presentation this morning is going to be by
23 Neal Davis, who as an industry economist at the Energy
24 Information Administration. Neal is sitting over here. He
25 studies U.S. and worldwide petroleum refining and gasoline

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1 marketing industry as well as other subjects. He has a Ph.D.
2 from Auburn University and a dissertation title of vertical
3 economies and divorcement laws and empirical studies, so he's
4 obviously been looking at this area for awhile.

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

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

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

17 DR. HOGARTY: No.

18 MS. DESANTI: While we're working on our technical

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

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

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

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

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1 the bottom, I didn't really have the room to put them in
2 here.

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

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

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

24 Now, as far as the marketing operations of the
25 integrated refiners versus the non integrated, they tended to

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1 move toward each other, and let me explain this use of
2 somewhat clumsy terminology. Traditionally the non
3 integrated refiners have been called independents.

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

14 What happened was that the outlets for the majors
15 declined, and the number of states in which they were
16 operating also declined. They were consolidating their

eTpa.2ms ~~Self-integrated refiners have been called independents.~~ operating also declined.

1 non integrated refiners were buying the assets from the
2 integrated refiners, or if you will, the independents were
3 buying assets from the majors, and their operations were
4 increasing in scope and in size, and the average number of
5 states in which each of them operated went from 8 to 17
6 between '90 and '99.

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

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

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

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

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

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

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

21 Now, the reason that all of this was taking place is
22 that the profitability of refining and marketing -- and
23 within our data we can't separate marketing from refining.

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

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

11 Then we have operating costs, and as you can see,
12 those were declining and actually accounted for the net
13 margin increases towards the end of the decade, and we found
14 that the net margin is pretty highly correlated with
15 profitability, with return on investment. Some earlier work
10 prices8

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

7 (Applause.)

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

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

20 MR. DAVIS: Well, the Office of Oil and Gas does
21 collect data that they -- and really most of the EIA outside
22 of the group in which I work collects facility data, if you
23 will, so you can associate those data with particular
24 regions. You can get state numbers, PADD region numbers, and
25 they sum up to U.S. numbers.

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1 The stuff hat we do, this finance stuff, the
2 financial reporting system, is corporate stuff, and only
3 heroically have I ever done anything on a regional basis, and
4 what I did do a couple of times was those particular years
5 that warranted it was stories on PADD V, and I tried to do a
6 similar thing with PADD III last year, and it didn't work.

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

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

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

1 adjunct economics professor at Virginia Tech. Prior to his
2 academic and consulting career Dr. Hogarty was- a senior
3 economist and research manager at the American Petroleum
4 Institute for over 18 years, and he will be discussing some
5 general trends also relevant to these issues.

6 DR. HOGARTY: It's good to be here this morning. My
7 presentation is on the web site, and today I'm just going to
8 go through four points based on that presentation relevant to
9 the material today. I think I'll just state those four
10 points and then briefly talk about each of them.

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

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

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

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

1 Consumer Price Index has a special section called the special
2 index energy commodities, and the fact that that is of
3 interest testifies to the volatility of gasoline because
4 that's what really makes it volatile, and we observe price
5 spikes like we had in California in '99 and in the midwest in
6 2000, 2001, but those were preceded by a tremendous price
7 collapse in 1998, so we've had the volatility down and the
8 volatility up.

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

15 Self-service was around for a long, long time, but
16 but at one time it was illegal in most states. Only in the
17 1970s when we had gasoline lines and subsequently high end
18 rising prices were state legislators motivated to repeal the
19 laws of prohibiting self-service, and once it got going in
20 the 1970s, it spread like wildfire, so that by the end of
21 that decade and certainly by the end of the 1980s, full
22 service had practically disappeared, to be prevalent only in
23 New Jersey, Oregon and a few other places.

24 Those price spikes of the 1970s also radically
25 changed the automobile market I would contend. My

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1 recollection is that before those price spikes, foreign cars
2 were relatively unpopular. They didn't sell very well in the
3 United States. The price spikes induced consumers to look at
4 those cars first as fuel efficient vehicles and later as
5 ordinary family cars.

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

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

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

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

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1 rates. The next lowest was gasoline.

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

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

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

21 While this is very surprising when you think that,
22 gee, places like Los Angeles, Chicago and New York have very
23 high gasoline taxes, places like Atlanta, Newark and St.
24 Louis have much lower gasoline taxes, yet Johnson found more
25 uniformity with gasoline prices across the country, very,

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1 very surprising. Now, why could this possibly happen?

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

9 The second phenomenon associated with this is that the
10 pump price of gasoline includes all taxes. Like you, I'm sure
11 I've had the disappointing experience of getting a great deal
12 on a rental car and landing near to the airport and for 0.0rit'l

9 88yo0numeie0TD g 28 Twclbo 1, T Tcg Toointing experie

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

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

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

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

24 So we have some new competitors in the refining
25 sector, but there has been even more entry over the long one

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1 As dealers have lost market share or channeled market
2 share, the importance of the dealer tank wagon price has
3 diminished in the weighted average. The dealer tank wagon
4 price was the most stable. The relative importance of the
5 spot price and the unbranded rack price has increased in
6 terms of challenge market share, and this is meant in an
7 evolutionary long-term sense an increase in stability and
8 wholesale gasoline prices.

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

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

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

24 There is a hitch though. The hypermarkets like the
25 really independent marketers such as Sheetz locally and many

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

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

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

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

22 Well, station density tends to be much less as these
23 zoning considerations come into play, and in general I would
24 offer the hypothesis that facility siting problems are
25 perhaps the biggest barrier to new competition in the

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1 manufacturing, the storage, the transportation, and the
2 marketing of gasoline.

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

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

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

21 On the other hand, while gasoline prices may become
22 less volatile because crude oil prices some new new new* 0 Tc 0.3n
20 is down.

1 conventional gasoline to be sold in their areas, and I would
2 not be surprised to see more jurisdictions imposing stricter

1 prices vary sometimes quite widely. Here are some specific
2 numbers you can look at, a figure demonstrating the
3 differences in prices between Los Angeles and San Diego,
4 between Los Angeles and the San Francisco Bay area.

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

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

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

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

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1 elasticity.

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

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

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

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

23 Buyers know the prices of all sellers, and they know
24 visiting costs before the decision to purchase is made, but
25 from a seller's perspective, I have an idea of what these

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1 visiting costs might be. I have an expectation of them.
2 Some individuals may have higher, some individuals may have
3 lower than my expectation. There's some randomness to that
4 net value that consumers would put on the product I'm
5 intending to sell.

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

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

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

24 Markup is essentially a function of elasticity, so we
25 have two then to look at to try to predict differences across

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

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

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

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

24 It's difficult to think of an example where you might
25 be able to do so. Often a price change occurs precisely

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1 because of a change in one of these factors.

2 Atlantic Richfield allowed our control of prices at
3 54 of their stations. We had 79 -- I think it was 79 days
4 over which we had control of prices, and as academics,
5 we sort of respond to this and say, Well, you can't be
6 serious. We questioned it and we questioned it, well,
7 it looks like we have control over prices.

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

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

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

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

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

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

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

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

23 If you're to look at the three areas in question and
24 try and come up with some sort of proxy for how we're going
25 to measure density, we can see what we've chosen to do, that

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1 is we consider a market of low density, that which has fewer
2 than 10 stations within 1.5 miles, some sort of mid level
3 density between one -- sorry, between 10 and 15 stations
4 within 1.5 miles and a high density station, a station that
5 has more than 15 stations within 1.5 miles.

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

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

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

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

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

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

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

25 Individuals also respond to changes in the relative

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

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

11 From that in our theoretical link between prices, the
12 markup and marginal cost, let's assume for the moment that

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

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

12 Thank you.

13 (Applause.)

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

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

21 I'm wondering a few different things, and let me
22 start with a series of questions, and then we can expand from
23 here. One question is: Neal, starting with your observation
24 that there's been a switch in the sense of -- and here we
25 have to define some terms -- from the companies that were

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1 considered majors say in 1985, and you've got a new
2 definition now of majors, but from those previous majors that
3 are vertically integrated into exploration and production, in
4 essence getting rid of stations is what I'm taking from what
5 you're saying, and previously -- well, previously considered
6 non major, now considered major refiners acquiring those

1 DR. HOGARTY: I can repeat things I recall from my
2 years working in the industry. I can't give you any specific
3 studies, but for a long time, the majors were spread out
4 among almost all of the states. In fact, some of the majors
5 bragged about being in all of the states, and that was a
6 service to the consumer and from that point of view they
7 operated these dealer networks, and they tried to provide a
8 high quality brand with quality control over a very large
9 geographic area, the 48 states, for example. And it was
10 considered high quality gasoline at a certain amount of high
11 cost marketing at a reasonable price.

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

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

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1 practices including both horizontal and vertical integration,
2 dual distribution, pricing practices, exchange contract and
3 other phenomena.

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

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

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

21 DR. HOGARTY: I would leap out and say, yes,
22 especially compared to the past. As recently as the late
23 80s, I believe that the quality of gasoline was a major
24 factor in consumers' minds, and location always has been of
25 paramount importance. Convenience is a big factor.

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

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

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

19 MR. DAVIS: Certainly. I think that's a big thing,
20 especially as Tom mentioned earlier the fact that they're so
21 prominently posted. I mean, it's very easy -- I know in
22 conversations that I had with my mother, she routinely tells
23 me about gasoline prices changes by five or six cents and how
24 she went here today because she saw there where she had been
25 buying it was much more.

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1 And I mean, I don't think she's a crazy old woman. I
2 think she's somewhat consistent with her behaviors or
3 consistent with other people. My wife would argue otherwise,
4 but, yeah, I would agree.

5 MS. DESANTI: Beck?

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

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

1 run studies that look at brand premia, but that would be
2 interesting to do it.

3 If you could get a long time path of station level,
4 market level data, to do a long-term study on brand premia, I

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

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

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

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

22 MR. CHRIS TAYLOR: I'll just --

23 MR. GIFFIN: If I can jump in here with a follow up
24 on that. One of the ideas that folks have used in looking at
25 retail competition is given that consumers are not likely to

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1 drive five, six, seven miles to find lower priced gasoline,
2 nevertheless, if you look at the area of a mile and a half
3 say around the station and plotted that on the map and
4 plotted all of those circles, you would have overlapping
5 circles so you literally have chains of links across an
6 area.

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

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

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

25 So we have a very select sample, so I hesitate in

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1 sort of drawing other sample conclusions from ours, only to
2 suggest that what we do have is a large number of stations,
3 54, every station within two miles of them, and we see these
4 differences.

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

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

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

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

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1 density station.

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

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

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

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

23 So preliminary evidence, at least one study that I
24 know of, indicates that the nature of competition does
25 matter, that when we start counting up stations within

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1 markets, I'm not sure that we can always assume that those
2 stations are the same, that the flag they're flying may in
3 fact have an effect.

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

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

9 MS. BURTIS: If you have ten independents --

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

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

14 MS. DESANTI: You're going to have to get closer.
15 Move the microphone closer to you.

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

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

22 MR. BECK TAYLOR: I think in Glenn's work, he is
23 taking an average of the stations within the market, but
24 certainly if the majority of those stations are independent
25 say, those prices will be lower and presumably controlling

1 for that, that may give him a better idea of price
2 elasticity.

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

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

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

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

24 I think there's a story to be told with respect to
25 the arbitrage going on, and when you recognize jobbers are

1 able to pick up unbranded gasoline in Los Angeles, drive it
2 to San Diego, there's a mechanism there by which there's an
3 arbitrage. Jobbers cannot pick up branded gasoline in Los
4 Angeles and drive it to San Diego.

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

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

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

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

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

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

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

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

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

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

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

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

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1 MR. DAVIS: Yes.

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

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

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

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

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

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

21 MS. BURTIS: Which is different from the Costco.

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

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

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

12 Since then it's been I think it was 87 percent in '99
13 and it's down to 85 percent in 2000, and those numbers -- I
14 should say that we brought out portfolios with 2000 with the
15 2000 data after I did the study which is why it stopped in
16 '99, but I know that their retail outlet numbers are
17 declining, but the sales were increasing.

18 I haven't actually looked at what their market share
19 is of sales, but certainly can pretty easily calculate it.

1 I'm wondering what factors contribute to this growth and what
2 factors may limit it.

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

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

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

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

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

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

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

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

22 The hyper markets conquered Europe easily because
23 they faced weak retail competitors. I think the independent
24 marketers, I'll take Sheetz as an example, are much tougher
25 birds to tackle, and I think that even the major refiners,

1 through the use of zone pricing, which is becoming more and
2 more ubiquitous, have the perfect answer, the perfect defense
3 to the hyper market phenomena.

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

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

15 DR. HOGARTY: In the land of the blind as they say,

1 period of distress from new highway construction or just the
2 opening of a new tough competitor nearby.

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

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

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

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

25 MS. DESANTI: Beck, did you have observations on

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1 this?

2 MR. BECK TAYLOR: No.

3 MR. GIFFIN: I have a question to try to put
4 some of these pieces together. This whole topic that we're
5 looking over these two days is in some ways like one of those
6 1,000 piece jigsaw puzzles, and it takes you forever to put
7 together.

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

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

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

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1 impact on retail pricing.

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

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

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

22 MS. DESANTI: Beck?

23 MR. BECK TAYLOR: I think I share the same opinion I
24 think as Michelle, and that is that to the consumer, retail
25 markets look pretty darn good right now, and I think that's

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1 not certainly a function of the exit out of the market.
2 That's a function of both the quantity and type of
3 competition that Professor Hogarty talked about.

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

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

20 What the consumer can expect in the future is going
21 to be largely dependent upon certainly what happens to the
22 world oil price, but because this particular conference is
23 paying more attention to local issues, I think the hyper
24 markets and how they play out, I happen to share Professor
25 Hogarty's opinion that hyper markets have kind of hit their

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1 ceiling in terms of volume because they can't compete with
2 the Sheetz and the Wawas of the world.

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

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

12 (Break in the proceedings.)

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

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

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

24 I would also add the caveat that this paper is
25 preliminarily and that I would request that it not be cited

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1 or quoted in any way until the final version is released, but
2 that being said, I will give permission to the organization
3 to go ahead and post the paper on the web site as long as
4 that's made clear.

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

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

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

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

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

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

19 We know of course the distributors or often what we
20 call jobbers also have those options. That is, jobbers can
21 supply to their own company operated station. They can
22for cases of r gasoline.

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

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

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

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

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1 consumers all the cost cuts they could manage."

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

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

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

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

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

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

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

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

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

24 So if you're going to buy any of the results I'm
25 going to give you today, I need to convince you that this

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1 particular sample is fairly representative of the market
2 itself, and I hope to do that here in a second, but just kind
3 of interestingly, if being jobber supplied is so much better
4 in the sense that we can serve the consumer so much better
5 and maybe even attract market share via lower prices and
6 maybe even increase profits, we should see a wholesale switch
7 in the market maybe from direct to jobber supply.

8 During my sample period, '92 to '96 -- actually the
9 price surveys only go through '95 but I have the census for
10 '96, we do see a slight decline in the proportion of
11 stations in Los Angeles, about a .5 percent decrease, and
12 depending on your perspective, that may be either a large
13 decrease or a small decrease. I'm not sure, but just
14 anecdotally we do see this decrease in the proportion of the
15 direct supplied stations.

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

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

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1 sample.

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

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

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

21 Now, I would take this particular table from my
22 student and I would say, That's all fine and dandy but you
23 have control -- maybe jobber stations are different. Maybe
24 jobber supplied stations look different. Maybe they locate
25 differently. Maybe they're in different markets. That might

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1 be able to explain a way a lot of these differences.

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

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

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

22 Well, it turns out that the table that I just showed
23 you, the results from that table also hold when controlling
24 for a different market and station level characteristics.
25 That is controlling for things like competition in the

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1 market, what kinds of ancillary services the station provides
2 via car wash, repair services, et cetera, brand effects and
3 also Kahn level and time effects.

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

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

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

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

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

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

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

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

23 And I'll say, as I hope any good researcher would do,
24 I tried to break these results. I mean, to be really honest
25 with you, I try to enter into my research with an

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1 objectivity, but I didn't like these results, and it wasn't
2 because I'm either a proponent or against open supply. It's
3 just I would have expected a null result. I would have
4 expected zero, that other things equal, there was no
5 difference between the two, but instead I got this very
6 robust result that in fact direct supplied stations are
7 lower.

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

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

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

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

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

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

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

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

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1 LA Basin area, about 120 switched to jobber supply, and about
2 20 switched to direct supply, okay?

3 But looking over all stations that either switched or

1 whether or not those stations are vertically integrated, that
2 is whether or not they are owned by a refiner.

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

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

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

25 And at this point I think it's important to note that

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1 from a refiners's point of view, when they are operating in a
2 market in which they have their presence or their product is
3 distributed mostly through franchisees or through
4 distributors, it is best for them when the retail market is
5 operating as competitively as possible. They want the retail
6 prices to be as close to competitive levels as possible
7 because that's when they sell the most gasoline.

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

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

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

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

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

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

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

25 In 1998 Khan was overturned or Khan overturned that

1 per se illegality, and refiners may now feel less constraint
2 in how they counsel their dealers to set retail prices.

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

12 One phenomena that people generally have talked about
13 now for about ten years is called the rockets and feathers
14 phenomena in this industry, and that is that when costs
15 rise, prices rise very quickly, but when costs fall, prices fall very slowly.

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

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

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

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

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

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1 results.

1 integration, that is, there are no company operated stations,
2 you still see this asymmetric price response, and you don't
3 see prices retail prices falling as quickly or as much when
4 wholesale prices are falling.

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

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

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

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

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1 reasons.

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

5 (Applause.)

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

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

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

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

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1 the other members of the panel have.

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

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

22 And of course as you saw in my results, I found that
23 indeed there are differences controlling for stations,
24 characteristics and market characteristics between stations
25 who source their product through the refiner and those that

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1 do not.

2 So I would say -- I would characterize my result as
3 not necessarily refuting the claims of proponents of open
4 supply but rather casting serious doubt on those claims.

5 Now, I have yet to find systematic differences
6 between open supply -- excuse me, direct supply and refiner
7 or jobber supply stations that seem to have an impact on the
8 difference in prices that I observed, but that does not mean
9 that they aren't out there.

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

16 MS. DESANTI: Any other observations? Tom?

17 DR. HOGARTY: One observation, below cost selling,
18 there have been a number of studies. Ron Johnson at Montana
19 State did one recently. There were some earlier studies in
20 various industries and government agency sponsored studies.

21 I think they tend to show that low cost selling
22 statutes, to the extent they have an effect at all, might
23 have an impact on the order of one to two cents per gallon.
24 There are below cost selling laws in quite a number of states
25 and the enforcement varies, and the firms subject to them of

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1 course vary.

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

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

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

23 Some investigators, John Umbeck in particular, tend
24 to assign it a relatively low number. Other investigators
25 like someone at Florida State come up with numbers like 3

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1 cents a gallon, but to the extent divorcement forces
2 replacement of refiner supplied station with jobber supplied,
3 then Beck's results potentially at least might have
4 implications for divorcement.

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

10 MS. DESANTI: All right. Michelle.

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

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

24 They come. They buy at the rack. They take the
25 product, and then they resell it to dealers or they use it in

1 their own vertically integrated stations.

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

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

1 divorcement prohibits refiners from directly supplying their
2 own stations, their company operated stations, but to the
3 extent that the refiners have a lower price than the jobbers
4 and to the extent that divorcement as a practical matter
5 forces jobber supply.

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

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

10 MS. DESANTI: I think Chris has a question.

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

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

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

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

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1 experiment beginning February 8, the Tosco Refinery incident
2 on the 23rd of February sent California gasoline prices up
3 significantly. Now, a priori I would expect that to hinder
4 a test, a proper test of that and that sort of hypothesis.

5 If I were to impose a two cent higher price for a
6 week on a particular station in Los Angeles or San Diego or
7 where have you, and a couple days later the Tosco incident
8 arrives, that above equilibrium -- quote unquote equilibrium
9 price that we've imposed is no longer above the equilibrium.
10 It's probably below equilibrium within a day or two, and
11 maintaining that price for a few days there where it's
12 actually now below the equilibrium price.

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

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

23 MR. CHRIS TAYLOR: I guess that was leading me to the
24 more general question. In the sense that we have station
25 level data or city level data by brand, if we were looking

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1 for some kind of response, some kind of collusive response
2 among the firms, and we're not lucky enough to have this kind
3 of natural experiment where we can exogenously raise and
4 lower prices and see if anybody responds, what should we be
5 looking for in terms of providing various brands?

6 MS. BURTIS: What is your experiment?

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

1 an economist's point of view, that really does not tell you
2 anything because that's equally consistent with a very
3 competitive market as it is with a market where there may be
4 some sort of collusion going on.

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

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

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

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

22 MR. BECK TAYLOR: I would just echo what Michelle
23 said, and that is certainly what we weren't looking for are
24 positive correlations on prices across time. That's
25 perfectly consistent and I would even argue is probably a

1 correct or explained correctly by a more competitive model.

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

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

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

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

24 MR. WROBLEWSKI: Can I just clarify one thing? I
25 want to make sure I understood it right. You said that in

1 local markets that have higher density, you have less -- you
2 may have a lower price because you have more competitors, but
3 that you have -- there's less variability in that market
4 among the prices that would then be at the lower level.

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

6 MR. WROBLEWSKI: Okay.

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

14 MS. DESANTI: Jim, you had a question.

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

21 I'm wondering, given your results, looking at the pre
22 and post Khan period, whether you would expect that if
23 somebody were to look at divorcement again in perhaps a
24 similar way to what you did, if one might find that the
25 effects of divorcement legislation are somewhat mitigated by

1 the Khan decision in light of the refiners' greater ability
2 to control what their retailers are doing in price?

1 know, just because there's Kahn, I certainly wouldn't say
2 that divorcement is okay.

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

6 MS. BURTIS: Okay.

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

11 MS. BURTIS: Right.

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

14 MS. BURTIS: I like that interpretation better.

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

23 MS. BURTIS: You know I've read that paper, I'm
24 generally familiar with it. That model -- there's two things
25 about it that are very different. First, it is not directed

1 at retail prices. It is directed towards unbranded rack
2 prices, and then the hypothesis that those authors were
3 looking at is, Would a refiner have the incentive after they
4 vertically integrate to raise the unbranded rack price
5 because they would then not only get the profits from the
6 higher unbranded rack price, but presumably if they're
7 vertically integrated, they get some retail profits as well
8 as those independent people who are buying from them at the
9 rack are at a competitive disadvantage.

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

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

23 So it's somewhat muddled because what they're saying
24 is on the one hand the refiners are going to raise this
25 unbranded rack price, so that they're going to get more at

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1 retail, but that variable that they've got in there, they're
2 really not getting those retail profits. At most they're
3 getting half of them, and so that's some sort of conceptual
4 problem with the study.

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

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

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

1 because jobbers can company operate stations just like a
2 refiner, and that's only a small subset of the total jobber
3 supplied stations.

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

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

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

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

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

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

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

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

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

11 (Applause.)

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

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1 C E R T I F I C A T I O N O F R E P O R T E R

2

3 CASE TITLE: PUBLIC CONFERENCE: FACTORS THAT AFFECT PRICES
4 OF REFINED PETROLEUM PRODUCTS

5 CONFERENCE DATE: MAY 9, 2002

6

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

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DATED: MAY 16, 2002

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14

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DEBRA L. MAHEUX

16

17 C E R T I F I C A T I O N O F P R O O F R E A D E R

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19 I HEREBY CERTIFY that I proofread the transcript for
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