

# **Analysis of Grain Basis Behavior During Transportation Disruptions and Development of Weekly Grain Basis Indicators for the USDA Grain Transportation Report**

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**Final Report**  
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**and Development of Weekly Grain Basis Indicators**  
**for the USDA Grain Transportation Report**

**May 2017**

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Disclaimer: The opinions and conclusions expressed in this report do not necessarily represent the views of USDA or AMS.

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## Introduction

The Transportation Services Division of USDA's Agricultural Marketing Service (AMS) has funded a cooperative agreement (under Cooperative Agreement Number 14-TMXXX-IA-0028) with two research outcomes:

- 1. A report providing analysis of grain basis behavior during transportation disruptions, and**
- 2. New indicators for the Grain Transportation Report (GTR).**

Researchers at Iowa State University and North Dakota State University have collaborated on this research. During the study period, corn, soybean, and wheat pricing and basis patterns were examined for the major producing areas for each crop. Based on this examination and a series of conversations with AMS staff, the project managers from each university (Dr. Frayne Olson at North Dakota State University and Dr. Chad Hart at Iowa State University) have created a list of recommendations for basis indicators for the Grain Transportation Report.

Basis is simply defined as the difference between the local cash price for a commodity and the comparable futures price for the same commodity. For example, the local cash price for corn in Gilbert, Iowa on January 3, 2017 was \$3.10 per bushel. On the same date, the nearby futures price for corn from the Chicago Mercantile Exchange was \$3.56 per bushel. Thus, the corn basis for Gilbert, Iowa was -\$0.46 per bushel on January 3<sup>rd</sup>.

$$\text{Basis} = \text{Cash Price} - \text{Futures Price}$$

Basis varies by crop, location, and time. The soybean basis for Gilbert, Iowa on January 3<sup>rd</sup> was -\$0.72 per bushel. The corn basis for Nevada, Iowa (10 miles east of Gilbert) was -\$0.43 per bushel. The corn basis for Gilbert, for corn to be delivered in October 2017, was -\$0.50 per bushel. Basis can be positive or negative. In general, basis is negative in major crop production areas and is positive in major crop usage areas or minor crop production regions.

While the futures markets reflect global supply and demand, basis (and cash prices) reflect local supply and demand. Basis represents a quick way to assess the different pressures between the global and local crop situations. A negative basis generally implies that local supplies exceed local demand. A positive basis generally implies the opposite. Many factors influence basis levels, from transportation costs and local storage capacity to delivery times and quality issues. Crop merchandizers set basis levels to cover the costs of shipping between crop producers and crop users and to influence the flow of the crop into and out of their facilities. Transportation costs are a major cost component for crop merchandizers as they move the crops through the marketing chain. Thus, merchandizers build those costs into the basis levels they set when negotiating with crop producers, when purchasing the crop, and crop users, when selling the crop. When merchandizers need to obtain more crop, they can strengthen the basis by making it less negative or more positive, depending on the situation. A strengthening basis indicates that

the local cash price is increasing relative to the futures price. When merchandizers wish to slow the flow of crop down, they will weaken the basis by making it more negative or less positive. A weakening basis indicates that the local cash price is decreasing relative to the futures price.

## Study Area and Price Data

To examine pricing and basis patterns across crops, regions, and time, four study areas were selected. These areas were chosen in consultation with AMS staff to address pricing and basis issues across multiple fronts. The areas are the markets around: (1) Fargo, North Dakota, (2) Williston, North Dakota, (3) Davenport, Iowa, and (4) Cairo, Illinois. These markets represent major production and shipping areas for corn, soybeans, and wheat and, in the case of Fargo, also show the pricing impacts as a region changes crop rotations (in this case, moving away from wheat into corn and soybean production). They provide coverage for the corn, soybean, and wheat markets; allow an examination of the impact of increased energy (ethanol and oil) production on grain transportation costs; explore areas where trade routes along the U.S.-Canadian border are expected to grow; and show the potential differences as products move through transportation channels. The market coverage and time frame varies across the different locations. In all cases, we sought to gather daily pricing data as far as 1990. As historical individual market data is not readily available, it was purchased from GeoGrain.com. As Table 1 displays, GeoGrain.com has developed a historical price and basis database, covering a vast number of individual market locations. To our knowledge, no other entity has gathered the depth and range of crop prices that GeoGrain has. In addition, regional price and basis data was obtained from the AMS Market News data portal,<sup>1</sup> along with individual market price data for selected wheat markets along the Canadian border. These supplemental data are used to compare the AMS reported data to individual market data and to provide more price coverage to explore the U.S.-Canadian border price settings.

Table 1. Individual Market Data from GeoGrain.com

Location	200 Mile Radius	
	Markets	Price Quotes
Fargo, ND	459	2,241,000
Williston, ND	105	260,383
Davenport, IA	1,313	4,649,000
Cairo, IL	378	1,204,000

## Additional Data and Exploratory Data Analysis

The data for three of the sites was received by Iowa State University in late December 2014. Two graduate students joined the project to analyze and model the data. Mr. Taylor

<sup>1</sup> <https://www.marketnews.usda.gov/mnp/ls-home>

Weidman concentrated on linking the pricing data to other relevant data sources, such as county crop production data, livestock production data, biofuel production data, and events that have caused transportation disruptions (such as extreme weather events and accidents).<sup>2</sup> (Appendix A includes a description of the variables and Appendix B provides the sources.) The county crop production data is a measure of local supply. In general, large local supplies translate into lower local cash prices and wider (more negative or less positive) basis. The livestock and biofuel production data are measures of local demand. Larger local demand for the crops is expected to connect with higher local cash prices and narrower (less negative or more positive) basis. Export demand also is connected with higher local cash prices and narrower (less negative or more positive) basis, as basis provides the price signal to move the crop into the supply chain and major shipping channels, as compared to storing it. Transportation disruptions affect transportation costs, with higher transportation costs often leading to wider basis patterns. These correlated events and production practices help shape the pricing behavior and were used to create a model linking supply/demand and transportation events to local pricing behavior.

Mr. Weidman explored the effects of local production, past changes in basis, national ethanol capacity, export levels, seasonal indicators, natural disaster and recession indicators, diesel prices, location indicators, railroad factors, and major river disruptions on basis levels. Results from those exploratory estimations by crop reporting district are shown in Appendix C.

In general, the analysis showed that higher local production and higher transportation costs are associated with wider basis levels. Higher local usage, via ethanol or livestock, is associated with narrower basis levels. In addition, there are some distinct seasonal patterns to basis, but they do vary by region of the country. And the impacts of natural disasters were mixed, again depending on the region of the country. With  $R^2$  ranging from 5 to 60%, there remains a lot of movement in basis that was not explained by the listed factors. But the spatial pattern in the  $R^2$  indicated that the listed factors were associated with more of the basis variability the closer the region was to the major shipping channel, the Mississippi River system.

In a further step to understand the data, Mr. Daniel Alexander mapped the pricing data over space and time to show the general pricing behavior across the Midwest and Great Plains and explored the changes in that behavior over time and during unusual basis events. Mr. Alexander constructed daily basis heat maps for the study areas, some of which are shown below. The heat maps were then combined to create short movies of basis patterns for corn and soybeans across the study areas from January 2003 to June 2012. These are available for viewing at <http://www2.econ.iastate.edu/faculty/hart/AMSBasis.html>. The movies show that basis levels change often. Sometimes the trigger is a transportation disruption, such as a hurricane or winter closure. But more often, other events are influencing basis.

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<sup>2</sup> This data, along with other information about the project, is archived at <http://www2.econ.iastate.edu/faculty/hart/AMSBasis.html>.

Figures 1 through 5 show the basis impact of Hurricane Katrina, which occurred in 2005. In the maps, stronger (or narrower) basis is indicated by the red and orange colors. Weaker (or wider) basis is indicated by the blue and green colors. Figure 1 displays a typical corn basis, stronger basis at points closer to the Mississippi River and closer to the Gulf of Mexico. This pattern is typical because basis tends to be weak in areas where local supply is large relative to demand and strong where demand is large relative to local supply. One can think of basis as the price signal to move the crop towards the areas where crop demands are relatively stronger. Prior to the proliferation of ethanol, export demand was a major determinant for basis.

Figure 1. Corn basis on August 23, 2005

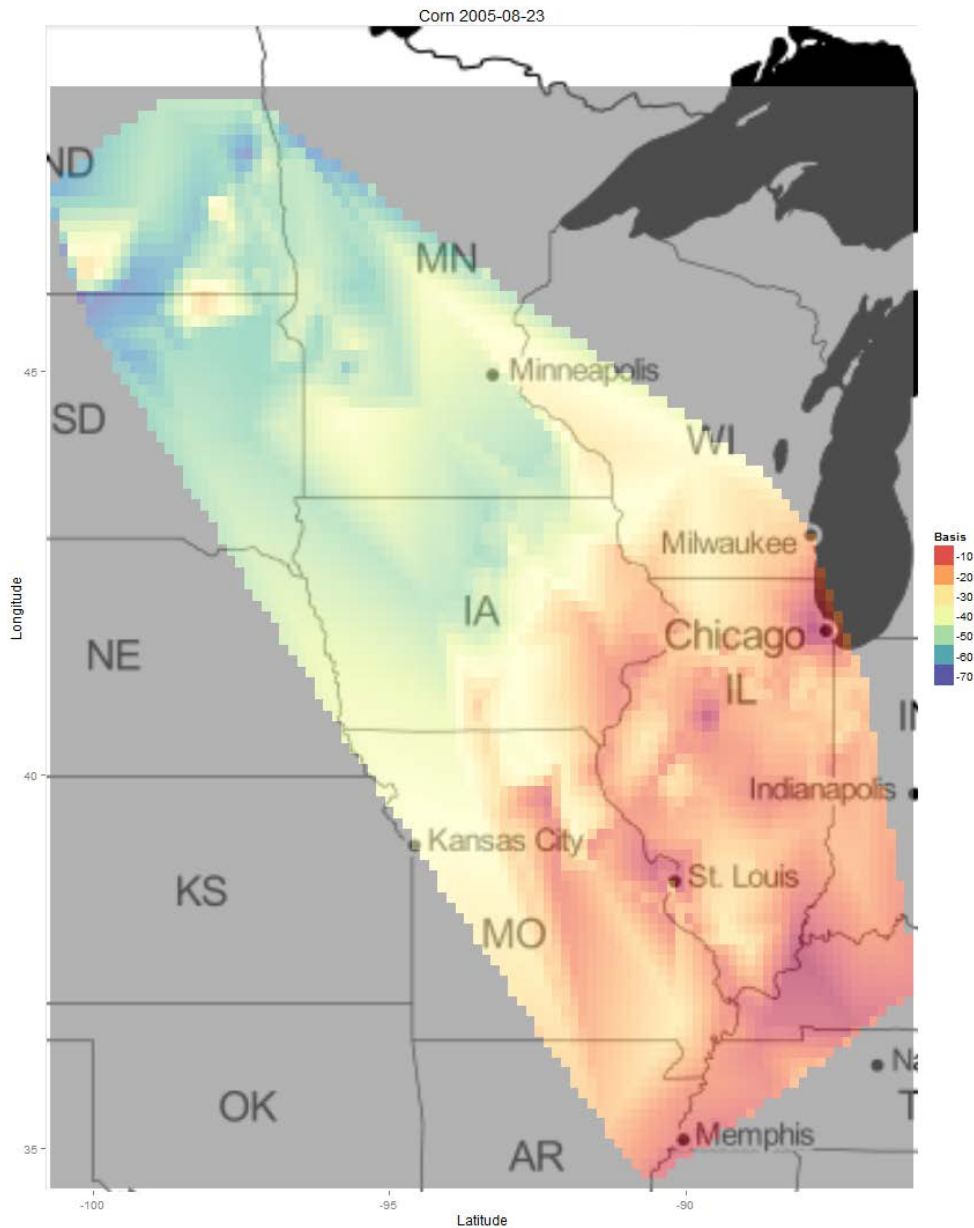
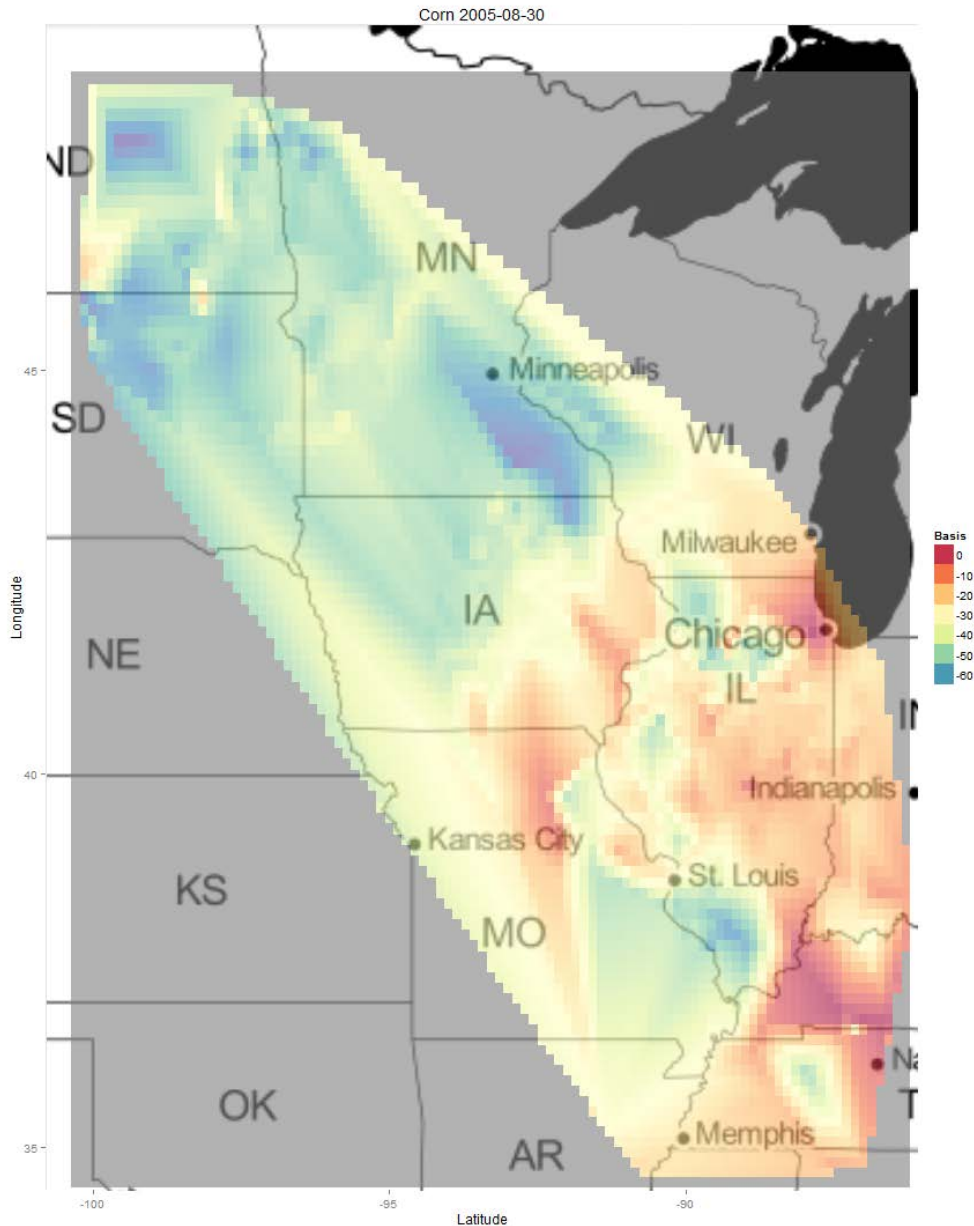




Figure 2 contains the basis levels one week later, just after Katrina's landfall in Louisiana. Basis levels deteriorated quickly along the Mississippi as far north as the Iowa border, as barge shipping was brought to a standstill. The stoppage of barge traffic meant crop merchandizers had to move to alternative transportation options or had to delay shipments. Those moves translated into higher transportation costs or delayed revenues. To offset those financial impacts, basis level weakened.

Figure 2. Corn basis on August 30, 2005



Figures 3 through 5 show that it took several weeks for grain shipments to rebound and basis to return to more normal levels.

Figure 3. Corn basis on Sept. 6, 2005

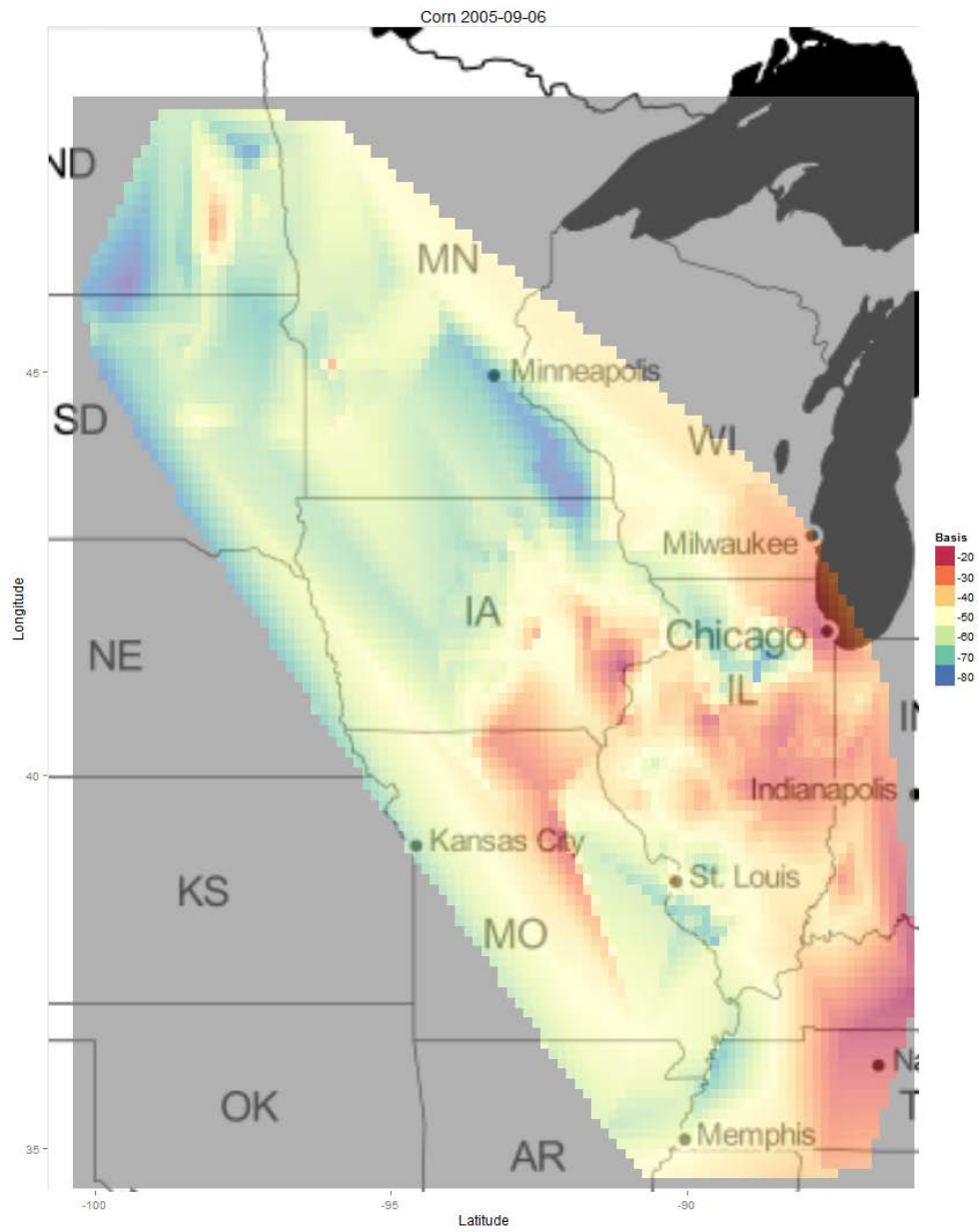


Figure 4. Corn basis on Sept. 13, 2005

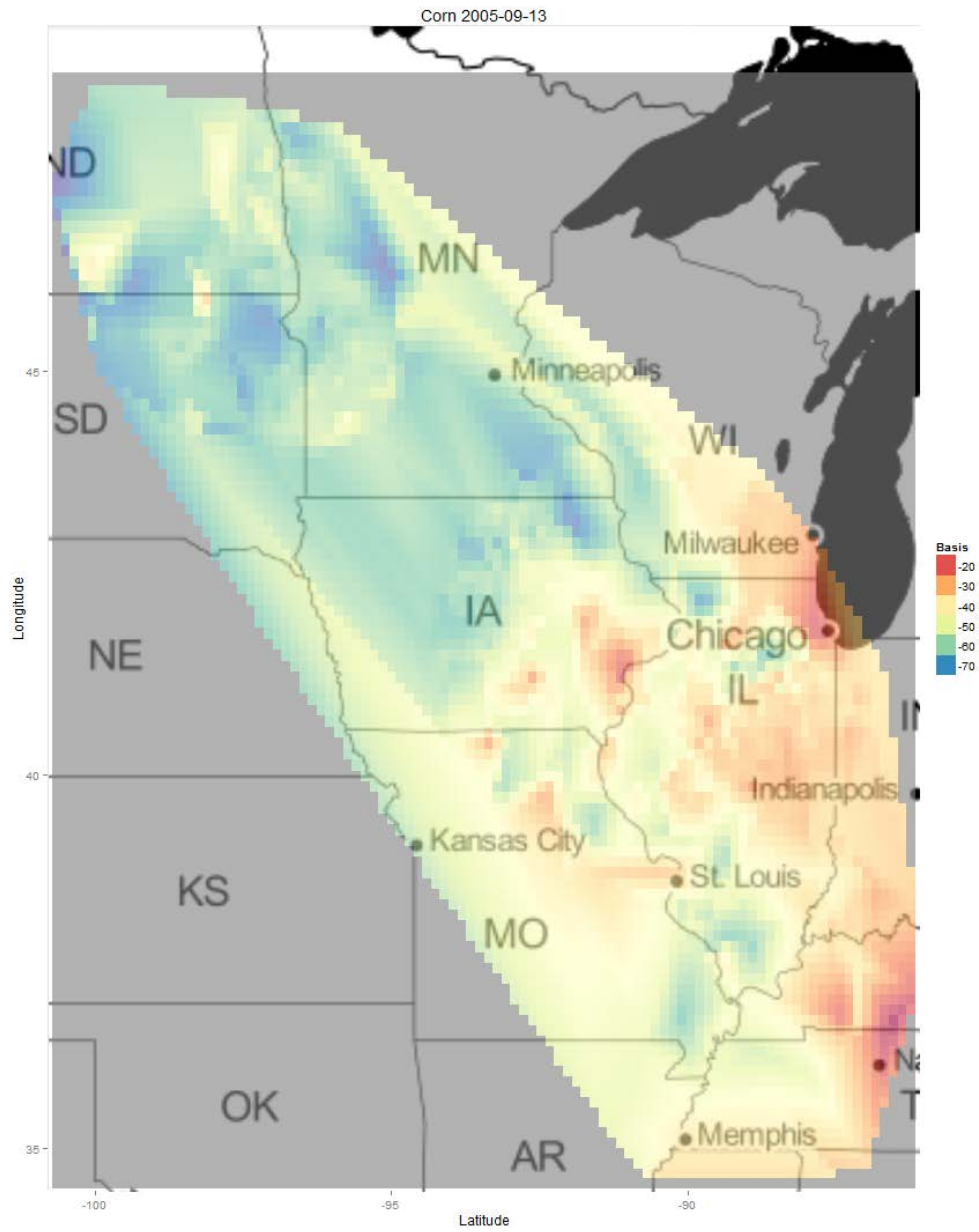
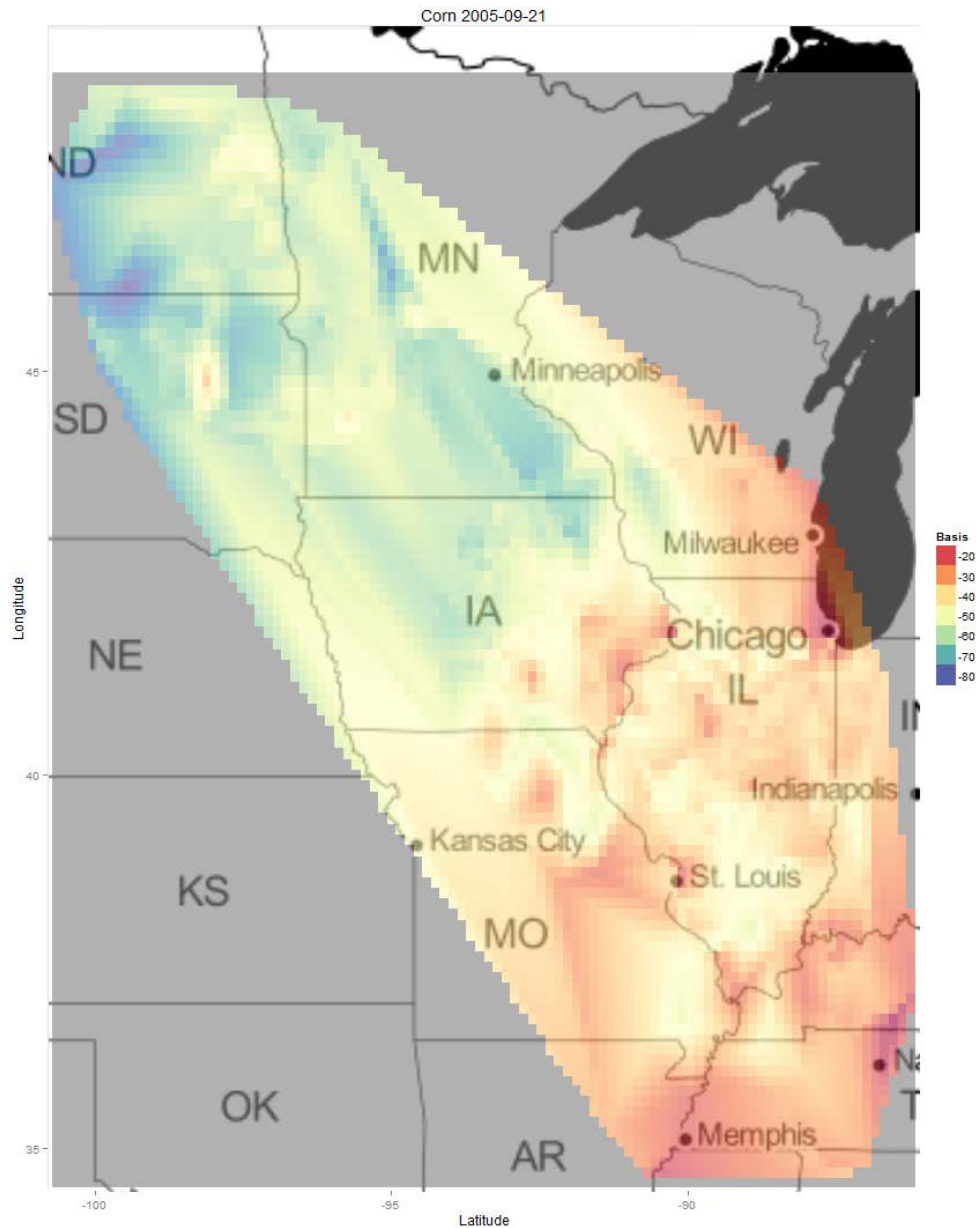


Figure 5. Corn basis on Sept. 21, 2005



While hurricanes provide the major threat to shipping at the Gulf ports, the winter closure of the northern part of the Mississippi River also affects shipments and basis levels. For the regressions in Appendix C, these events are separately modeled to explore the potential for differential impacts. The winter closures are captured by the disruption variables. There are differences in the basis impacts from hurricanes and winter closures. Hurricanes tend to weaken basis throughout the Midwest, but the larger downward swings in basis are seen along the Mississippi River and closer to the Gulf ports. The winter closures weaken basis in the upper Corn Belt, but can strengthen the basis further south as the northern crops become more landlocked.

The regression results in Appendix C showed that basis also reacts to other events, such as the construction of ethanol plants and the relative balance between local supplies and demands for the crops. In fact, the other factors, especially transportation costs, usually play a larger role in basis setting. To explore this in a more defined setting, we examined basis patterns for USDA-AMS reported prices.

## **Basis Patterns for AMS Prices**

USDA-AMS already captures some price and basis data across the country, which provides consistent price series to work with on basis issues. Figure 6 shows the average basis patterns for the last 10 years (covering the 2007-2016 crops) for the 6 major corn price series for the Iowa-Southern Minnesota region. The southern Minnesota price series were discontinued on Oct. 15, 2015, but the other series continue to be reported. The temporal patterns seen here align with expectations for basis across many areas and crops. Basis tends to be the weakest (most negative or less positive) just after harvest (when local supply is at its largest), and then tends to improve (or strengthen) as the marketing year progresses (as crop demands work through the supply). For corn and soybeans, the marketing year starts September 1<sup>st</sup> and ends the following August 31<sup>st</sup>. Basis levels tend to strengthen as the distance to demand centers shrinks. For example, the basis levels in southern and eastern Iowa tend to be higher than those for southern Minnesota and northern and western Iowa due to closer proximity to the export terminals in the Gulf. Basis levels also tend to shift sizably in conjunction with futures contracts. Since basis is the difference between local cash prices and futures prices, basis jumps when different futures contracts are used. This often happens at the beginning of the contract month for the futures contracts, so for corn, the jumps occur at Sept. 1, Dec. 1, Mar. 1, May 1, and July 1. Most crop merchandizers set their basis from the nearby futures contract, except within the futures contract month, where they use the next contract in line. For example, in Figure 6 below, there are sizable jumps in basis levels around July 1 due to the shift between the use of the July futures contract for June basis and the September futures contract for July basis.

Figure 7 shows the average corn basis pattern for the USDA-AMS prices for Illinois since 2007. They exhibit the same patterns as the Iowa corn basis. The futures jumps are more exaggerated, especially the December, March, and July transitions, due to reactions to the drought in 2012. The impact of the drought was harsher in the eastern Corn Belt and thus, basis levels adjusted more in Illinois than in Iowa.

Figure 6. Average corn basis for USDA-AMS reported prices for Iowa and southern Minnesota

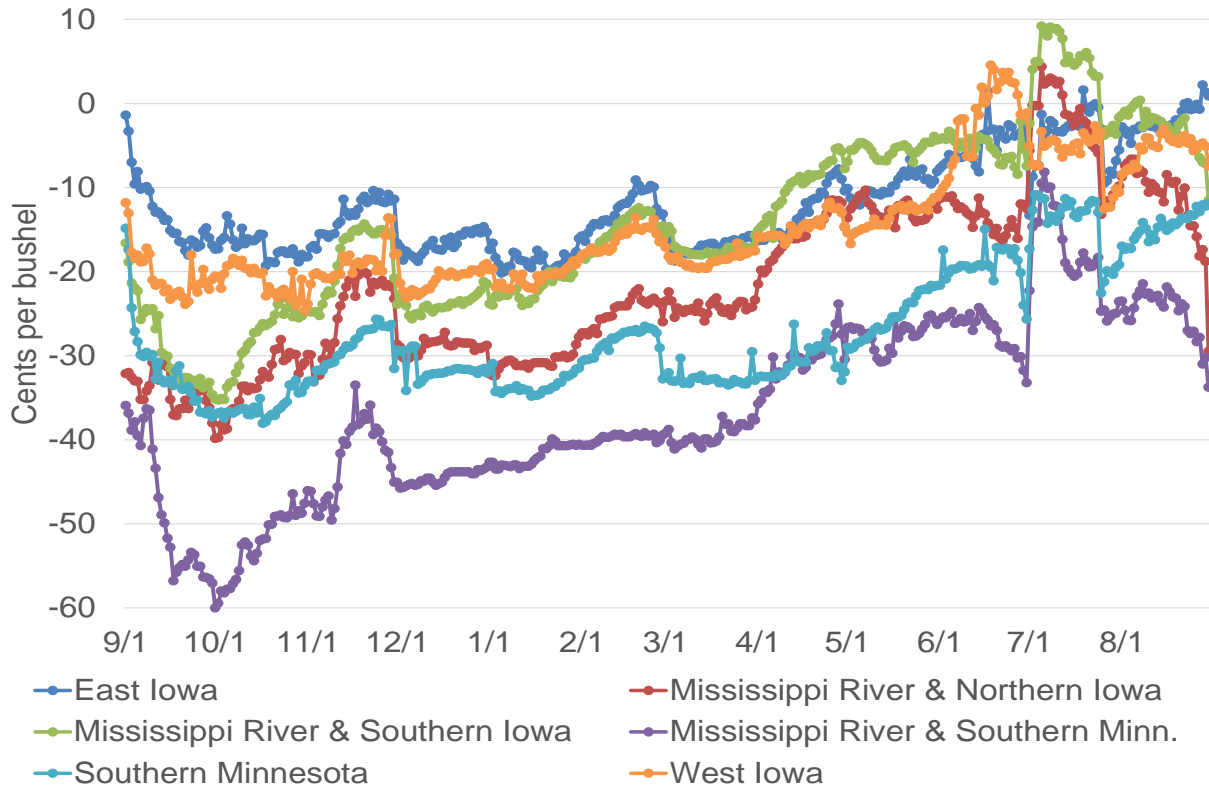
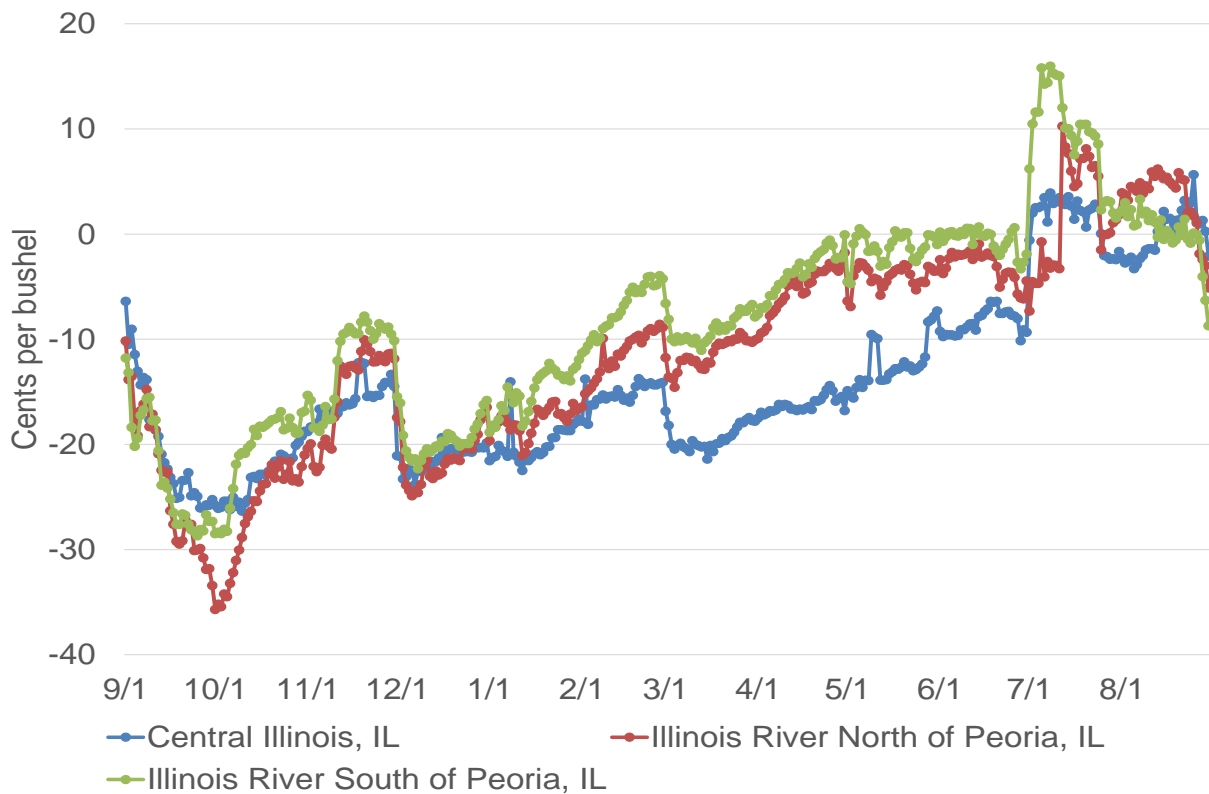


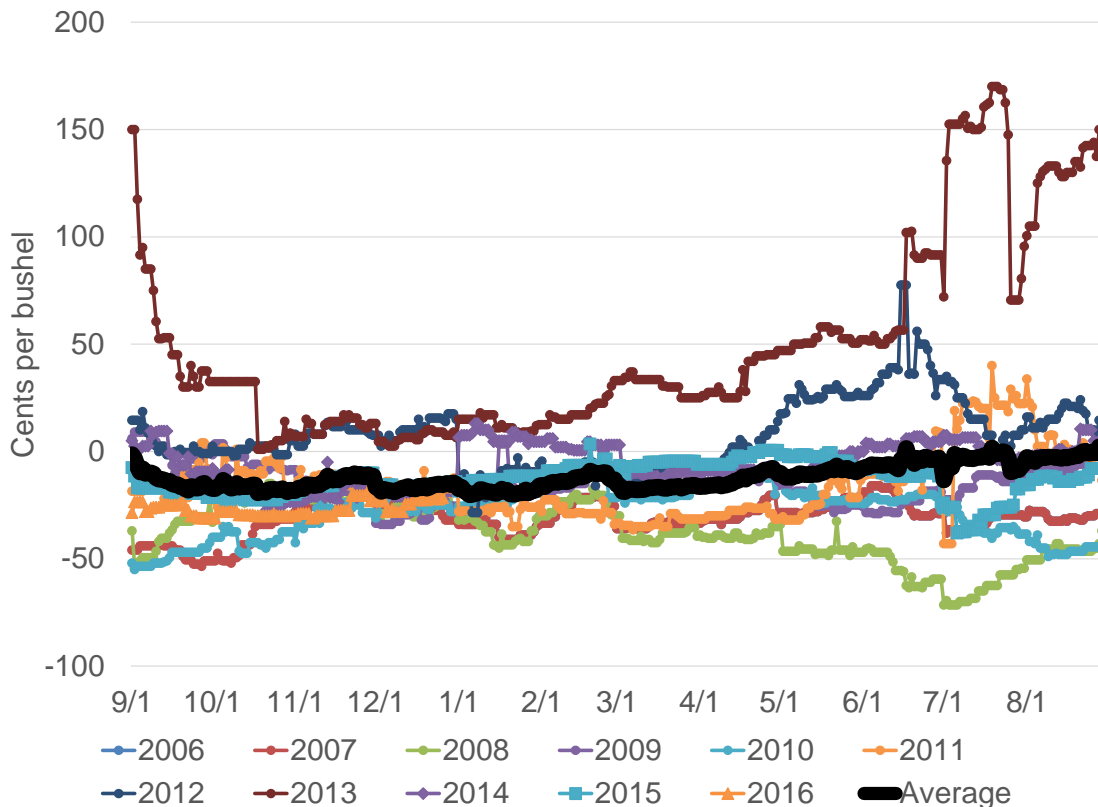
Figure 7. Average corn basis for USDA-AMS reported prices for Illinois



While the average corn basis patterns for both regions display a slow and relatively steady improvement of basis over the course of the marketing year, the annual graphs for each price series show the significant variability of basis over the past 10 years (Figures 8 to 25). They also show that the variability in basis tends to increase as the marketing year progresses. For the AMS Iowa and southern Minnesota price series (available online at <https://marketnews.usda.gov/mnp/ls-report-config>), data goes back to the beginning of 2007. At that time, the ethanol surge had just begun for corn. As ethanol production grew over the past 10 years, corn basis has generally improved in the Corn Belt. The increased local corn demand via ethanol supported higher local cash prices, hence improved basis.

Figures 8 to 19 show the annual movements of corn basis for the individual AMS price series for Iowa and southern Minnesota. Corn basis strengthened in general over the period, mainly due to the expansion of ethanol from 2007 to 2011 and then the drought of 2012. As the figures display, corn basis became positive for much of Iowa and southern Minnesota in 2011. The drought shrunk local supplies sizably, reinforcing and strengthening the positive basis. As the drought intensified, corn basis in the region moved to \$1 over futures, when the typical pattern is for basis to be near and usually below zero. As harvest time approached, some areas saw basis rise to \$1.50 over futures. So, during the past 10 years, corn producers have seen basis vary significantly, within a \$2.50 range (for comparison, the average corn price at the start of the period, in 2006, was \$2.50).

Figure 8. Eastern Iowa corn basis





As Figure 8 shows, the drought had a major impact on basis levels in eastern Iowa. To isolate the more typical basis pattern, Figure 9 displays the same information with the 2012 and 2013 basis levels removed (both from the graph and from the average). The basis jumps due to the change in futures contracts becomes much more apparent once the drought impact is removed. And as the following graphs show, the drought impacts were very similar across the regions.

Figure 9. Eastern Iowa corn basis (removing drought effects)

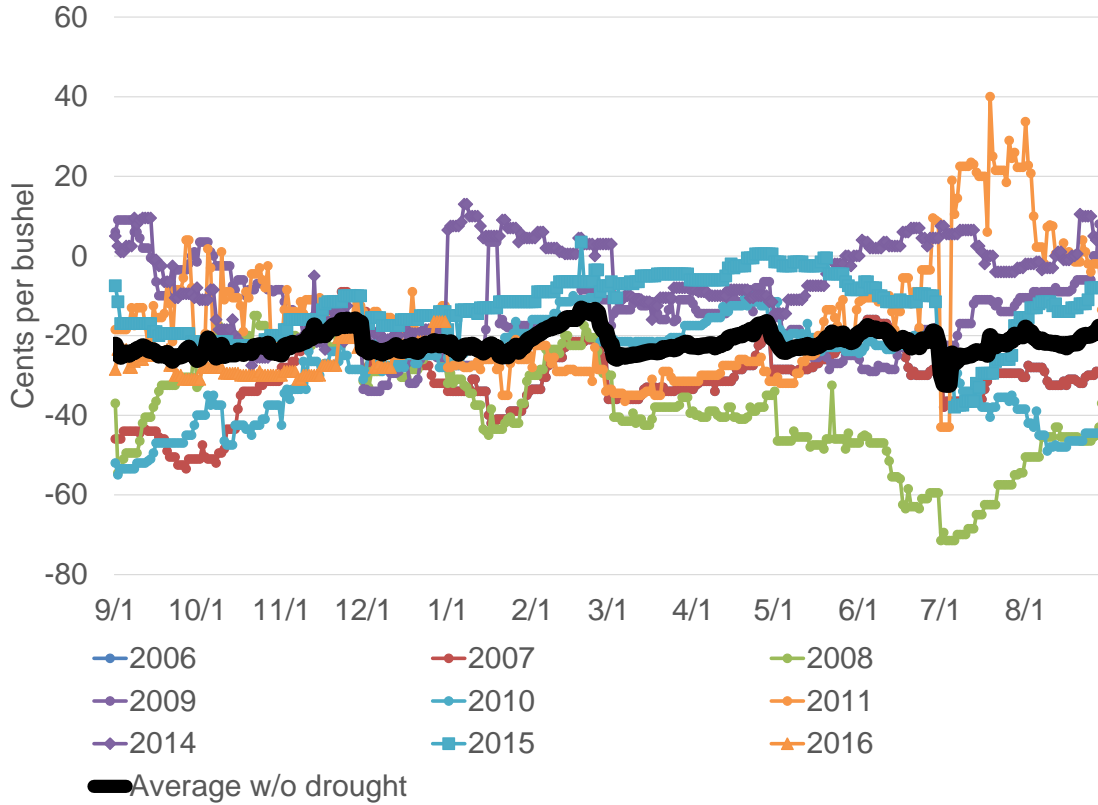




Figure 10. Western Iowa corn basis

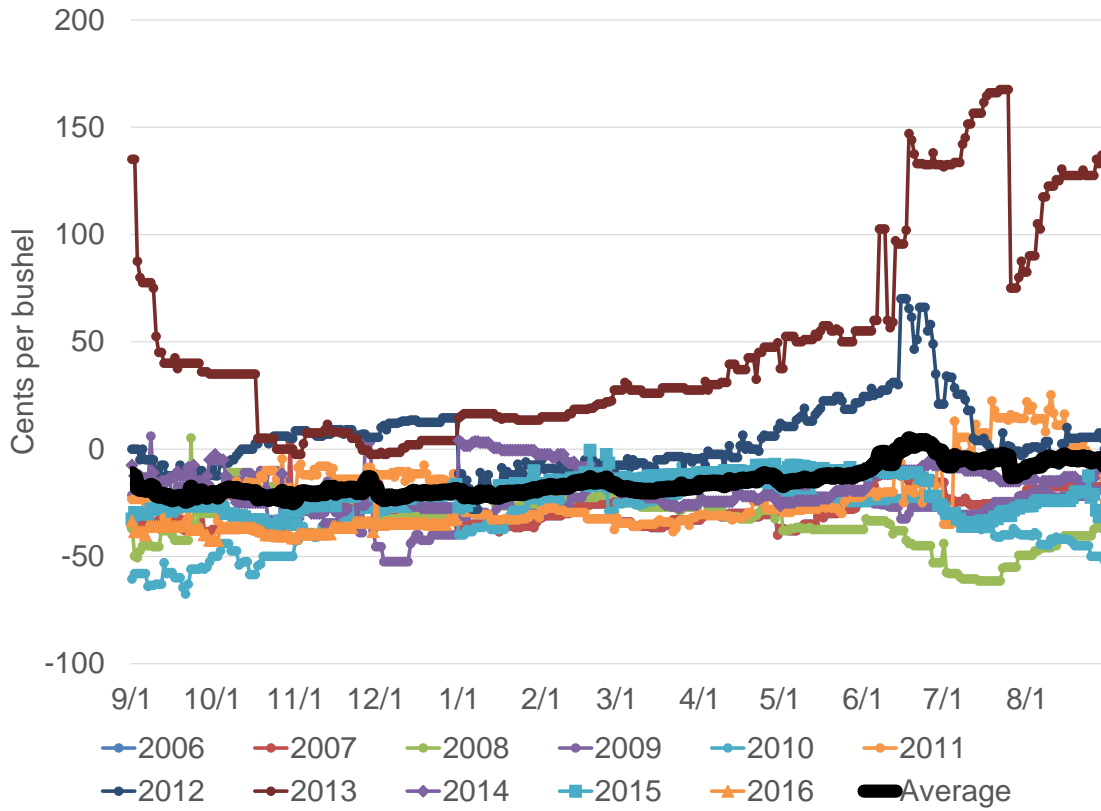


Figure 11. Western Iowa corn basis (removing drought effects)

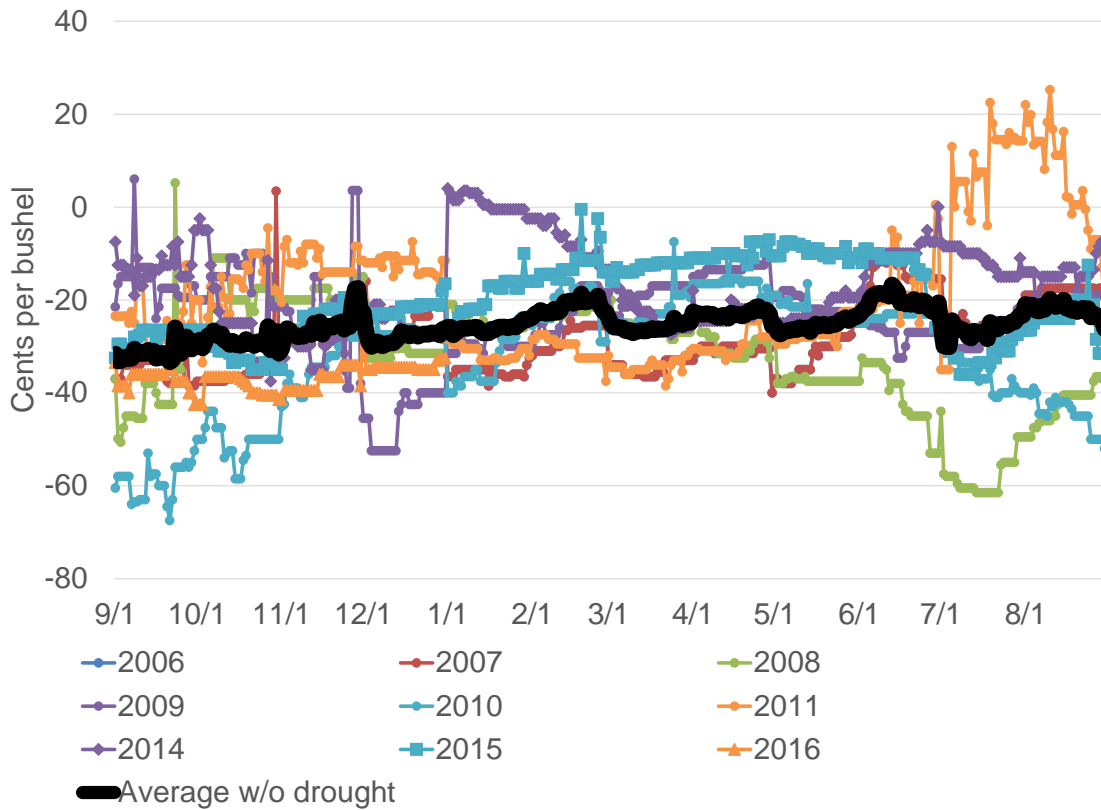


Figure 12. Mississippi River and Northern Iowa corn basis

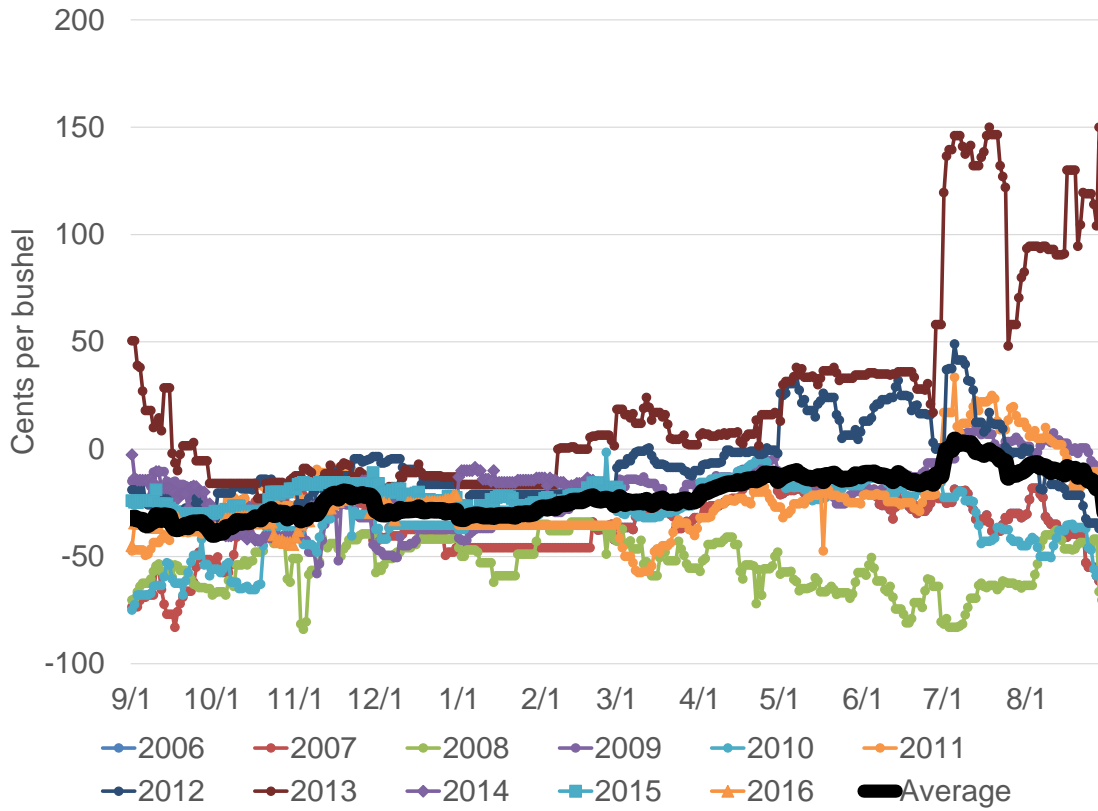


Figure 13. Mississippi River and Northern Iowa corn basis (removing drought effects)

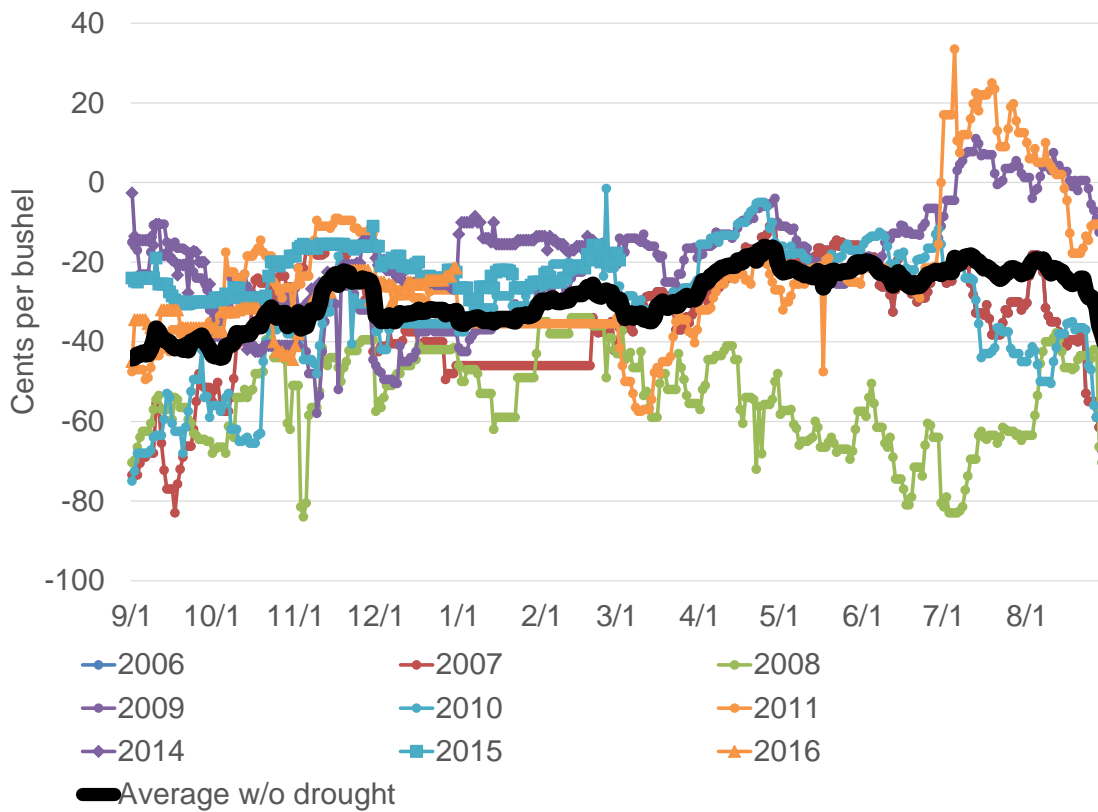


Figure 14. Mississippi River and Southern Iowa corn basis

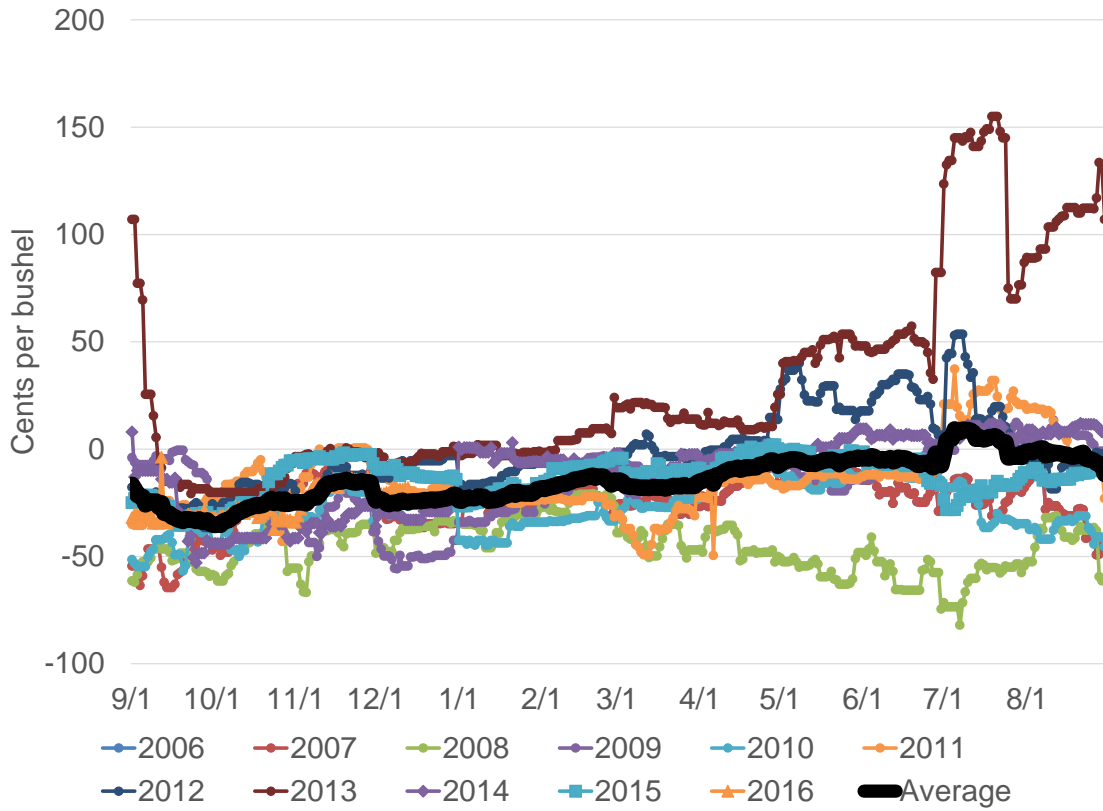


Figure 15. Mississippi River and Southern Iowa corn basis (removing drought effects)

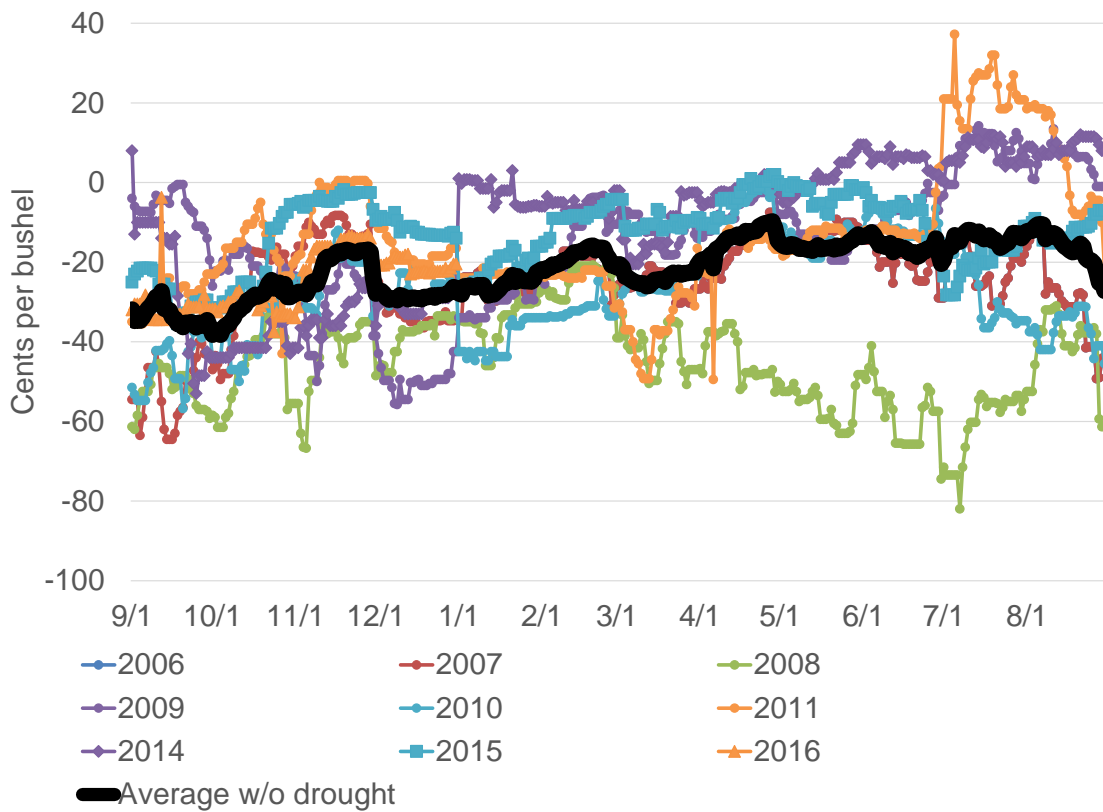


Figure 16. Southern Minnesota corn basis

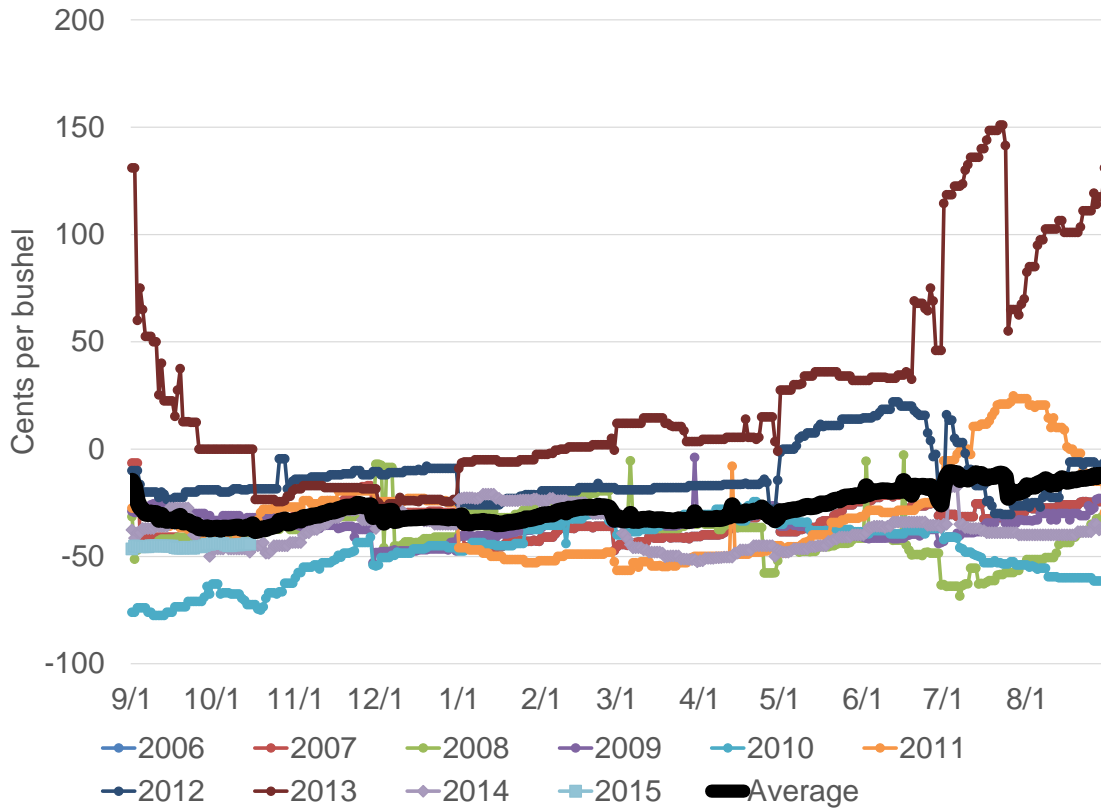


Figure 17. Southern Minnesota corn basis (removing drought effects)

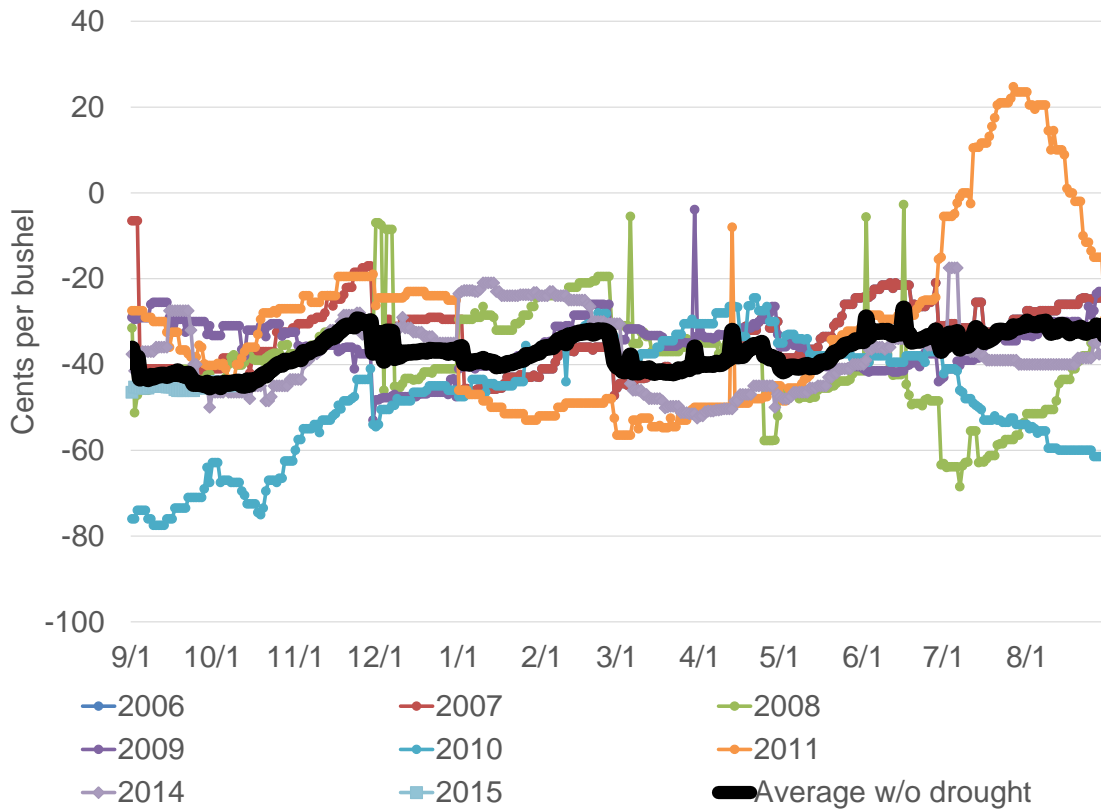


Figure 18. Mississippi River and Southern Minnesota corn basis

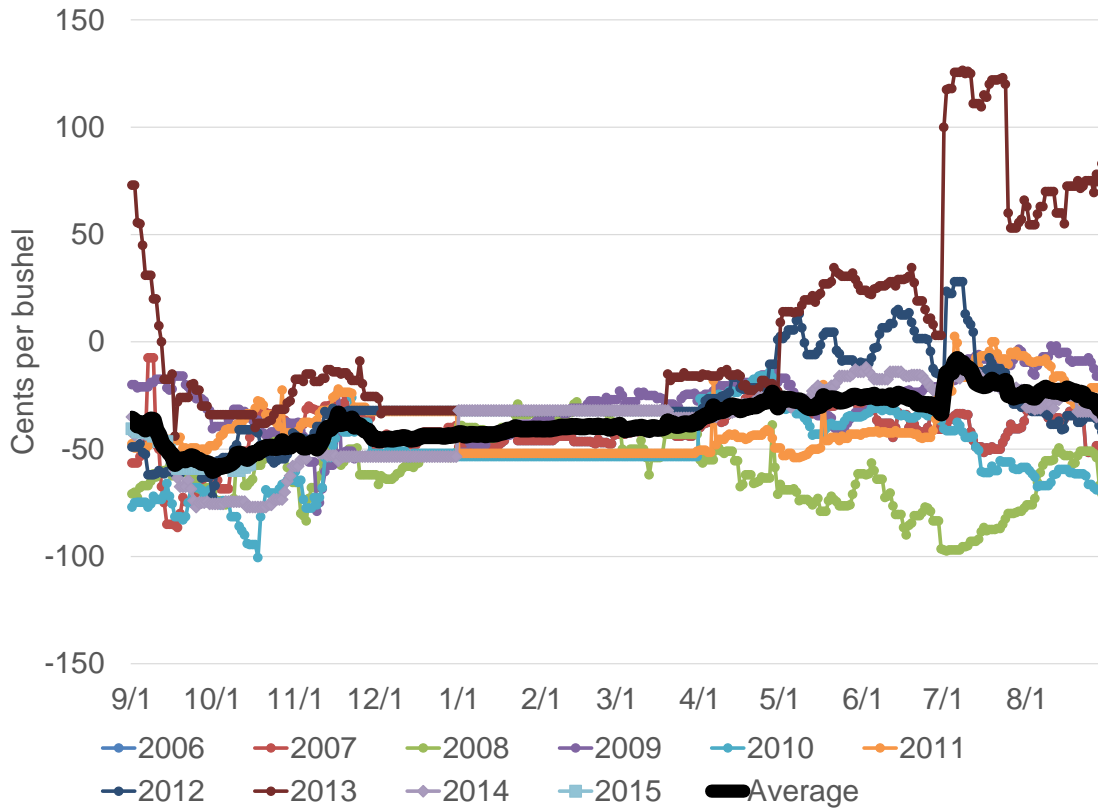
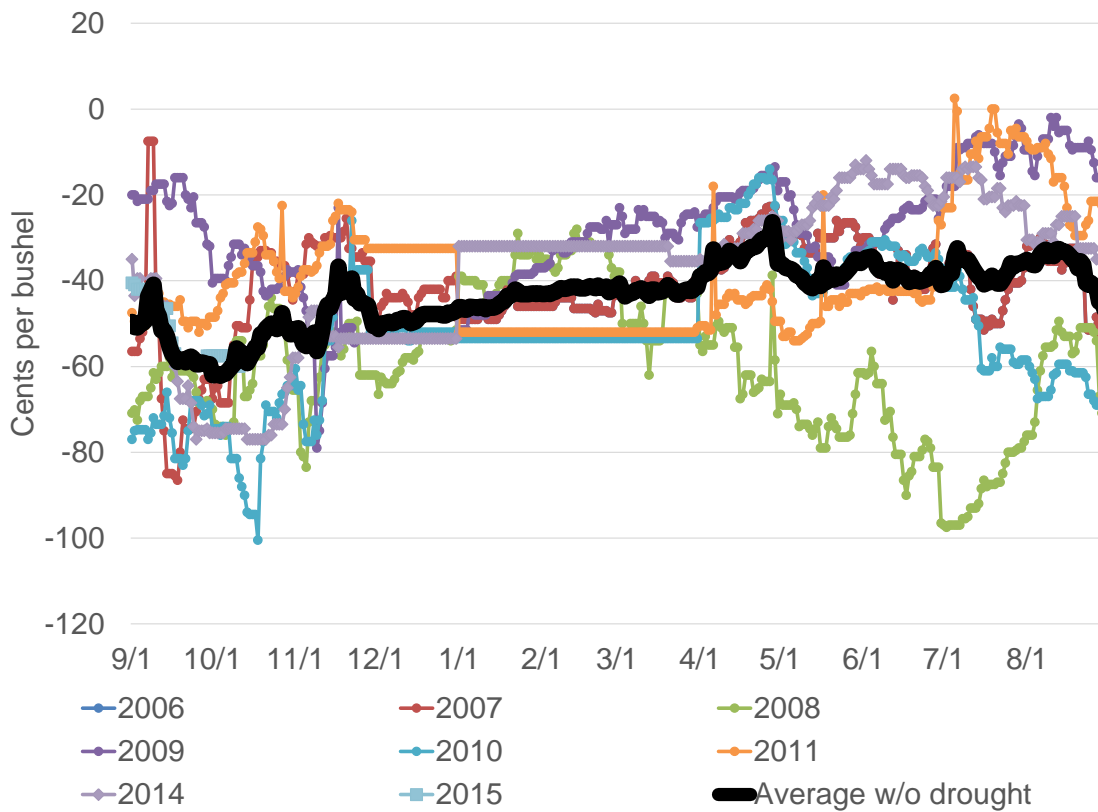


Figure 19. Mississippi River and Southern Minnesota corn basis (removing drought effects)



For the AMS Illinois price series, online data goes back to the beginning of 2003. And we see a very similar pattern for corn basis. As ethanol production grew over the past 10 years, corn basis has generally improved. Figures 20 to 25 show the annual movements of corn basis for the individual AMS price series for Illinois. Corn basis strengthened during the period due to the ethanol expansion and the drought.

Figure 20. Central Illinois corn basis

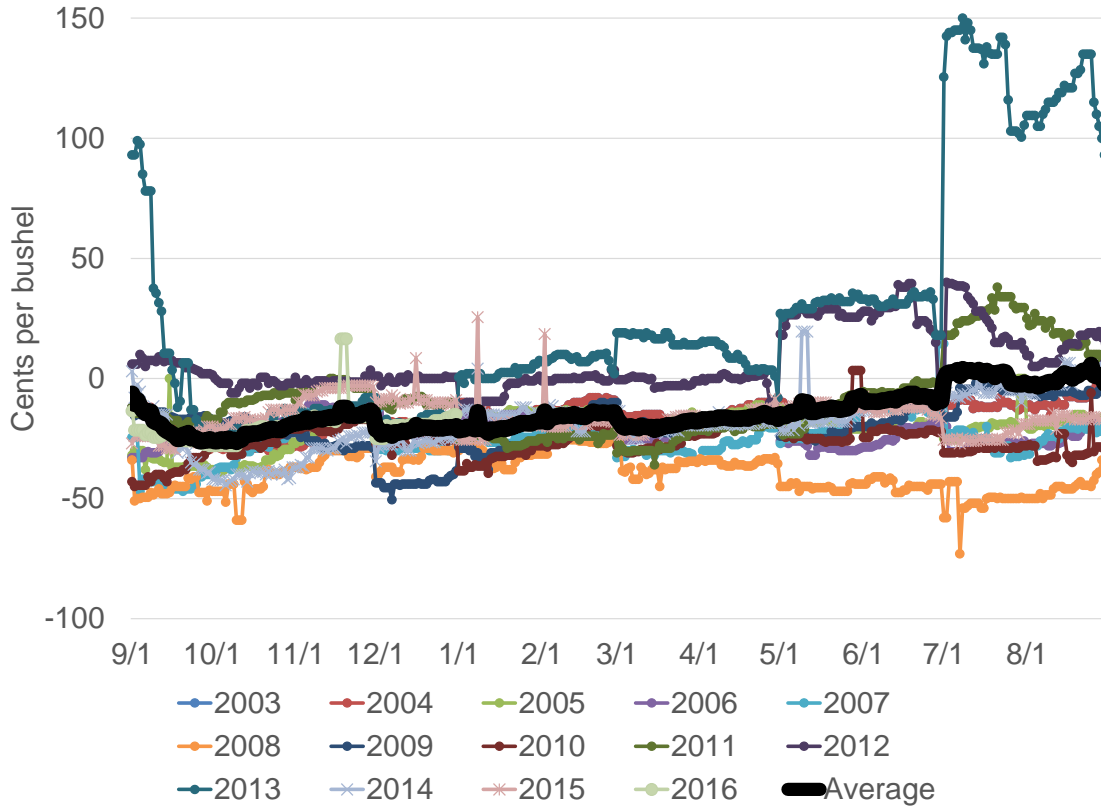


Figure 21. Central Illinois corn basis (removing drought effects)

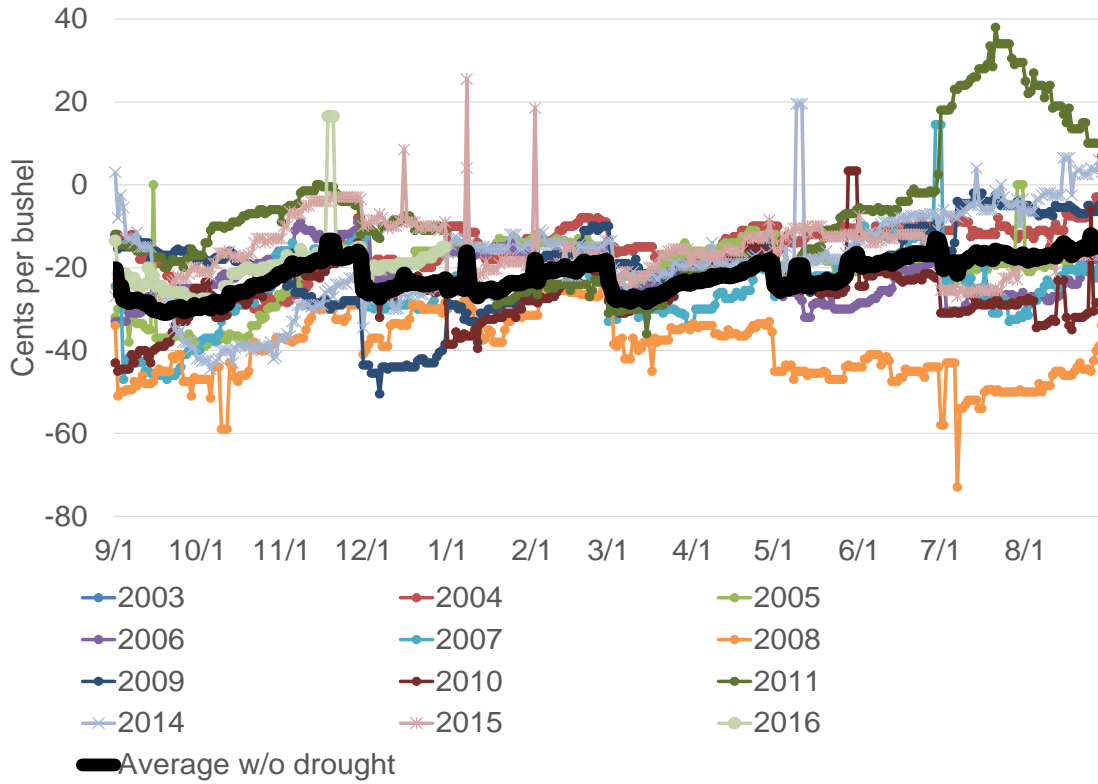


Figure 22. Illinois River, North of Peoria corn basis

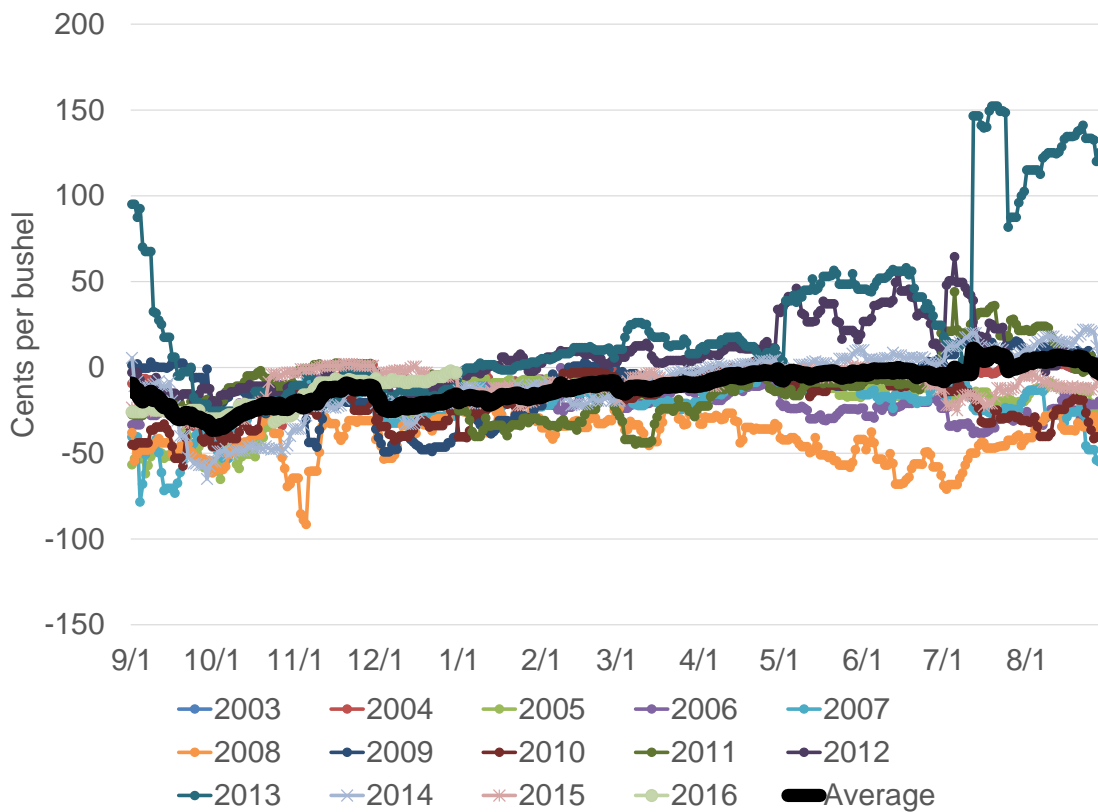


Figure 23. Illinois River, North of Peoria corn basis (removing drought effects)

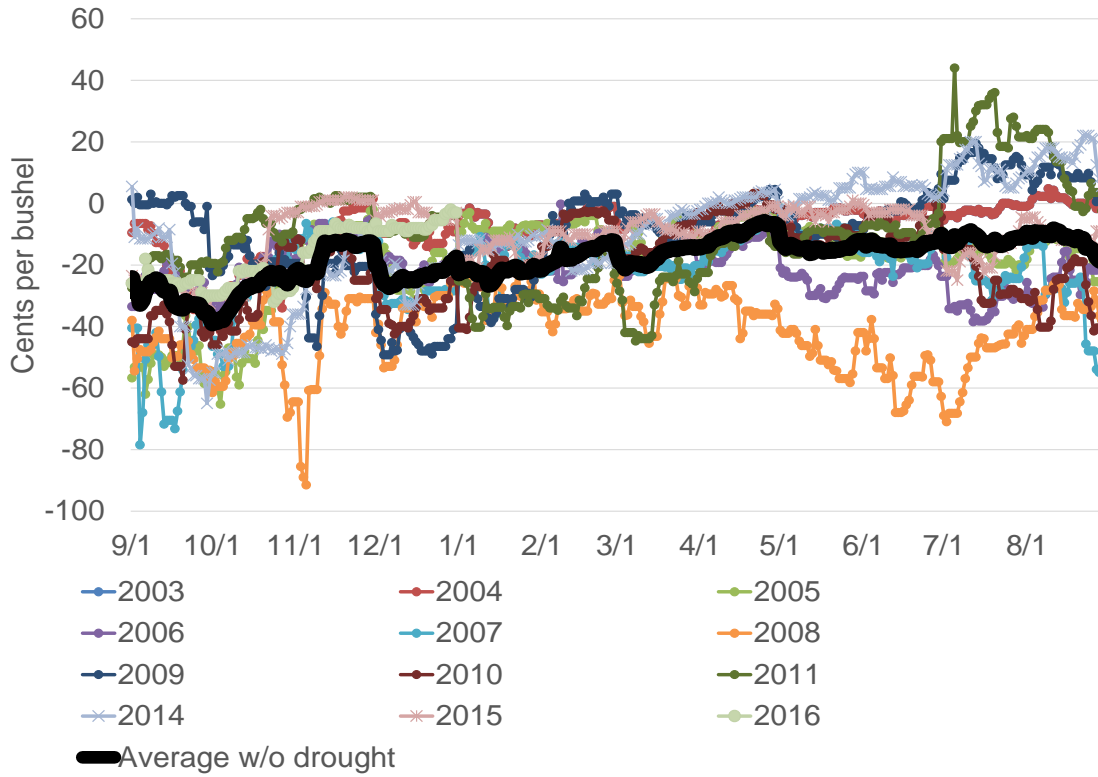


Figure 24. Illinois River, South of Peoria corn basis

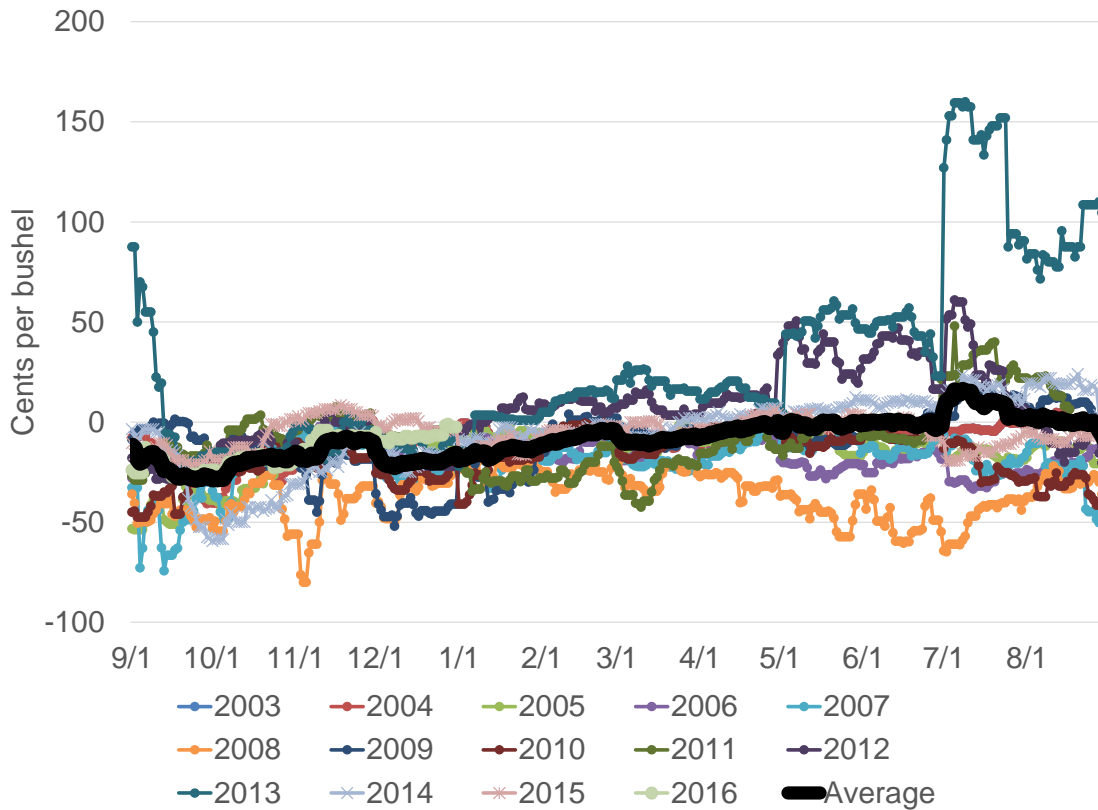
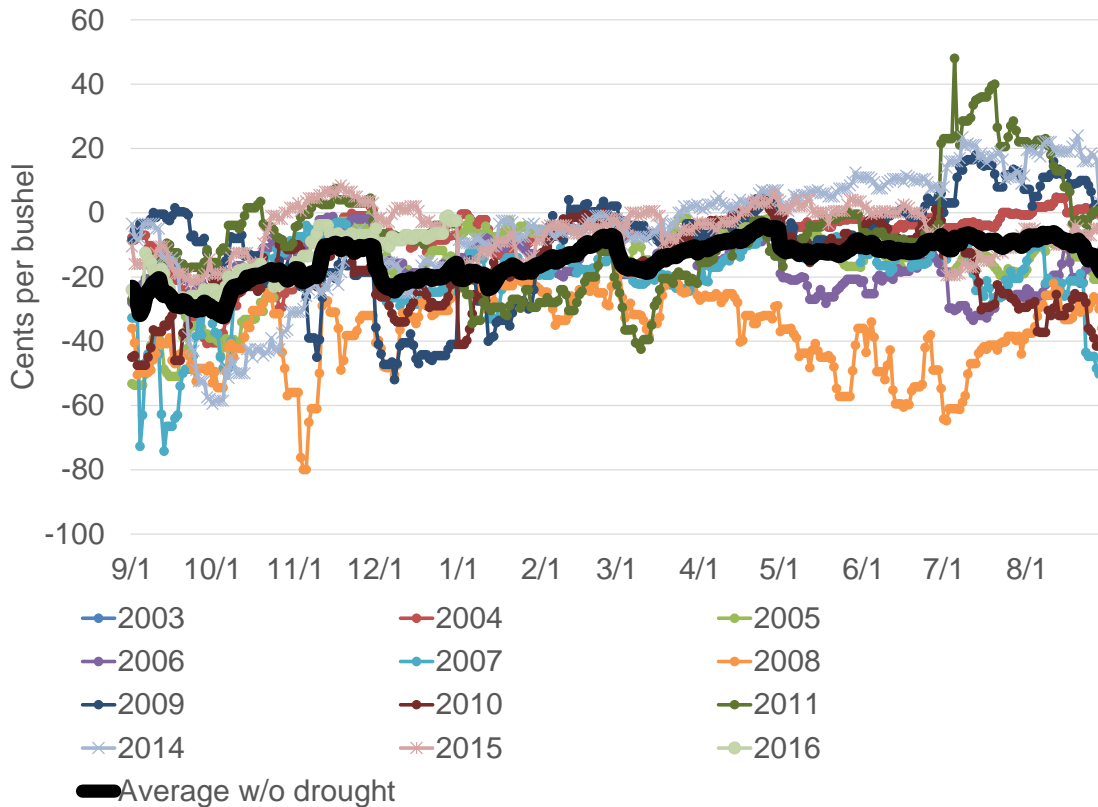




Figure 25. Illinois River, South of Peoria corn basis (removing drought effects)



## Regression Analysis

To explore these basis series in more detail, regressions were estimated to examine the factors shaping basis movements in the AMS price data over a 10 year period (2003 to 2013). Borrowing from the earlier analysis (contained in Appendix C), local demand factors, such as ethanol production and livestock numbers are included in the regressions. Indicator variables to highlight the futures contract shifts are added. Transportation disruptions are captured via the hurricane and winter closure variables. General economic outlook is proxied by the S&P index, while transportation costs are captured with diesel prices and secondary shuttle rates. Also, a drought indicator is included to separate and examine the basis shifts from drought conditions. The local demand factors, the S&P index, and drought indicator are expected to be positively related to basis, while transportation disruptions and costs are expected to be negatively related to basis. The following model was estimated using ordinary least squares (OLS):

$$\begin{aligned} \text{Basis} = & b_0 + b_1(\text{March}) + b_2(\text{May}) + b_3(\text{July}) + b_4(\text{September}) + b_5(\text{Ethanol}) + b_6(\text{Livestock}) \\ & + b_7(\text{Hurricane}) + b_8(\text{S\&P}) + b_9(\text{Diesel}) + b_{10}(\text{Gulf Basis}) + b_{11}(\text{Shuttle}) \\ & + b_{12}(\text{Winter}) + b_{13}(\text{Drought}) + e \end{aligned}$$

where  $e$  is the error term and

- March = An indicator variable if the March futures contract is the nearby; Yes: 1; No: 0.

- May = An indicator variable if the May futures contract is the nearby; Yes: 1; No: 0.
- July = An indicator variable if the July futures contract is the nearby; Yes: 1; No: 0.
- Sept = An indicator variable if the Sept. futures contract is the nearby; Yes: 1; No: 0.
- Ethanol = The statewide cumulative capacity of ethanol production in million gallons.
- Livestock = The total annual statewide livestock, measured in head of cattle.
- Hurricane = An indicator variable indicating a two week period after a hurricane impacts the major Gulf of Mexico ports.
- S&P = The price of the S&P Index on the date of the data-point.
- Diesel = The price of diesel (in dollars).
- Gulf = The ocean freight rate from the Gulf of Mexico ports to Japan.
- Shuttle = The price of the near-month secondary rail shuttle market bid.
- Winter = An indicator variable indicating periods of time when the upper Mississippi River is closed due to ice.
- Drought = An indicator variable for the 2012 drought.

The final regression results are shown in Tables 2 and 3.

Table 2. Regression estimates for AMS Iowa and southern Minnesota corn basis

	East Iowa	Mississippi River & Northern Iowa	Mississippi River & Southern Iowa	Mississippi River & Southern Minn.	Southern Minnesota	West Iowa
	FOB	Barge Loading Elevators	Barge Loading Elevators	Barge Loading Elevators	Country Elevators	FOB
	Cash	Cash	Cash	Cash	Cash	Cash
R Square	0.693	0.684	0.657	0.511	0.612	0.663
Standard Error	19.411	18.657	18.385	20.048	19.396	20.294
Observations	1774	1579	1725	1892	1736	1771
Parameter Estimates						
Intercept	-607.617*	-577.796*	-549.299*	182.828*	-898.503*	-638.842*
March	-1.271	4.291	1.824	5.432*	1.132	-5.395*
May	-3.649*	8.166*	7.300*	14.174*	1.400	-2.302
July	-2.502	10.350*	11.532*	13.822*	5.790*	0.285
Sept	15.634*	26.353*	26.953*	21.483*	21.295*	14.583*
Ethanol	0.041*	0.049*	0.044*	0.027*	0.027*	0.030*
Livestock	0.114*	0.100*	0.097*	-0.077*	0.188*	0.125*
Hurricane	0.898	-0.765	-0.566	-4.473	7.122	2.810
S&P	0.099*	0.103*	0.101*	0.060*	0.096*	0.097*
Diesel	-16.779*	-24.236*	-21.745*	-17.922*	-14.003*	-13.570*
Gulf	-0.250*	-0.104*	-0.146*	-0.047	-0.151*	-0.242*
Shuttle	-0.018*	-0.024*	-0.022*	-0.016*	-0.018*	-0.016*
Winter	-8.054*	-3.055	-4.847*	5.492*	-4.152*	-3.365
Drought	31.873*	22.947*	18.458*	28.891*	28.970*	36.759*

Note: Parameters marked with an asterisk are statistically significant at 5%.

The futures indicator parameters generally reflect the improvement in basis over the course of a marketing year. The significant exception to this is for the FOB prices in the spring, where basis moderately widens. In most cases, the ethanol and livestock parameters have the expected positive sign, as increased local demand for crops should result in a strengthening basis. For the Iowa and southern Minnesota basis levels, the hurricane impact was not found to be significant, but the winter closure impact was for four of the six series. The transportation cost parameters (“Diesel,” “Gulf,” and “Shuttle”) have the expected negative sign, as increasing transportation costs should translate into weaker basis levels. Notably, for example, a \$1 change in the price of diesel is associated with a \$0.17 drop in basis in east Iowa. And the S&P proxy shows that better general economic conditions are correlated with stronger basis. But the largest impact to basis levels came from drought conditions.

Table 3. Regression estimates for AMS Illinois corn basis

	Central Illinois Country Elevators Cash	Illinois River North of Peoria Barge Loading Elevators Cash	Illinois River South of Peoria Barge Loading Elevators Cash
R Square	0.650	0.589	0.560
Standard Error	15.328	17.089	17.074
Observations	2489	2481	2481
Parameter Estimates			
Intercept	207.113*	199.889*	167.807*
March	-2.757	1.227	0.722
May	-3.003*	6.880*	5.761*
July	2.087*	9.480*	9.404*
Sept	18.038*	21.392*	19.358*
Ethanol	-0.017*	0.003	0.005
Livestock	-0.193*	-0.187*	-0.162*
Hurricane	-4.756	-9.766*	-10.230*
S&P	0.071*	0.076*	0.072*
Diesel	-21.307*	-28.311*	-25.079*
Gulf	-0.094*	-0.041*	-0.055*
Shuttle	-0.020*	-0.021*	-0.019*
Winter	-4.466*	-5.542*	-4.799*
Drought	26.714*	20.219*	19.571*

Note: Parameters marked with an asterisk are statistically significant at 5%.

As with the Iowa results, the Illinois results show that the futures indicator parameters reflect the improvement in basis over the course of a marketing year. However, unlike the Iowa results, the local demand factors were not significant in the case of ethanol or had an unexpected negative sign in the case of livestock. For Illinois prices, the hurricane impact was found to be significant and was roughly twice the size of the winter closure impact. This makes sense as Illinois is closer to the Gulf and further away from the winter river stoppages. The hurricane impact is also larger at the barge loading elevators along the Illinois River than it is for the country elevators. Again, this makes sense based on the barge loading elevators' greater reliance on river transportation to reach crop users. The transportation cost parameters have the expected negative sign. And, again, the S&P proxy shows that better general economic conditions are correlated with stronger basis.

## Wheat Basis Issues

Dr. Olson and the North Dakota State University staff chose five pricing points to examine wheat basis. Pricing data for these points came from GeoGrain. These points were selected on the

attributes of their location on main railway lines, near a port of entry with Canada, and on well-maintained highways connecting the two countries. While the cross-border trade between the U.S. and Canada has been significant for a few decades, the growth in agricultural trade and shipments between the U.S. and Canada has greatly increased over the past decade. Given the expansion of crop production in the Northern Plains of the U.S. and the Great Plains of Canada, along with the ability to move and ship crops across the border in both directions, these five markets provide a snapshot of current basis patterns. The five markets are:

- 1) Harvey, North Dakota, on the Canadian Pacific (CP) railway,
- 2) Rugby, North Dakota, on the Burlington Northern Santa Fe (BNSF) railway,
- 3) Berthold, North Dakota, on both the CP and BNSF lines,
- 4) Williston, North Dakota, on the BNSF line, and
- 5) Wolf Point, Montana, on the BNSF line.

Figures 26 to 30 show the wheat basis movements for the 5 markets. As with the other markets examined, basis tends to be the weakest (most negative or less positive) just after harvest, and then tends to improve (or strengthen) as the marketing year progresses. For wheat, the marketing year starts June 1<sup>st</sup> and ends the following May 31<sup>st</sup>. The figures also show that the variability in basis tends to increase as the marketing year progresses. They also show that wheat producers have seen basis vary tremendously over the past few years. Basis was the strongest around the 2011 crop, when wheat production waned due to lower planted acres and weather issues that reduced wheat yields.

The North Dakota markets also highlight another type of transportation disruption that can affect crop basis. Oil production has ramped up significantly in North Dakota over the past ten years, as shown in Figure 31. In 2014, the oil boom in North Dakota put a significant strain on the railway infrastructure for the state. The vast majority of freight moving through the state was related to the oil industry, leaving little room for any other products. And as the figures show, wheat basis weakened to limit the flow of grain. The closer the market was to the oil fields, the larger drop in the basis.

Figure 26. Wheat basis for Harvey, North Dakota

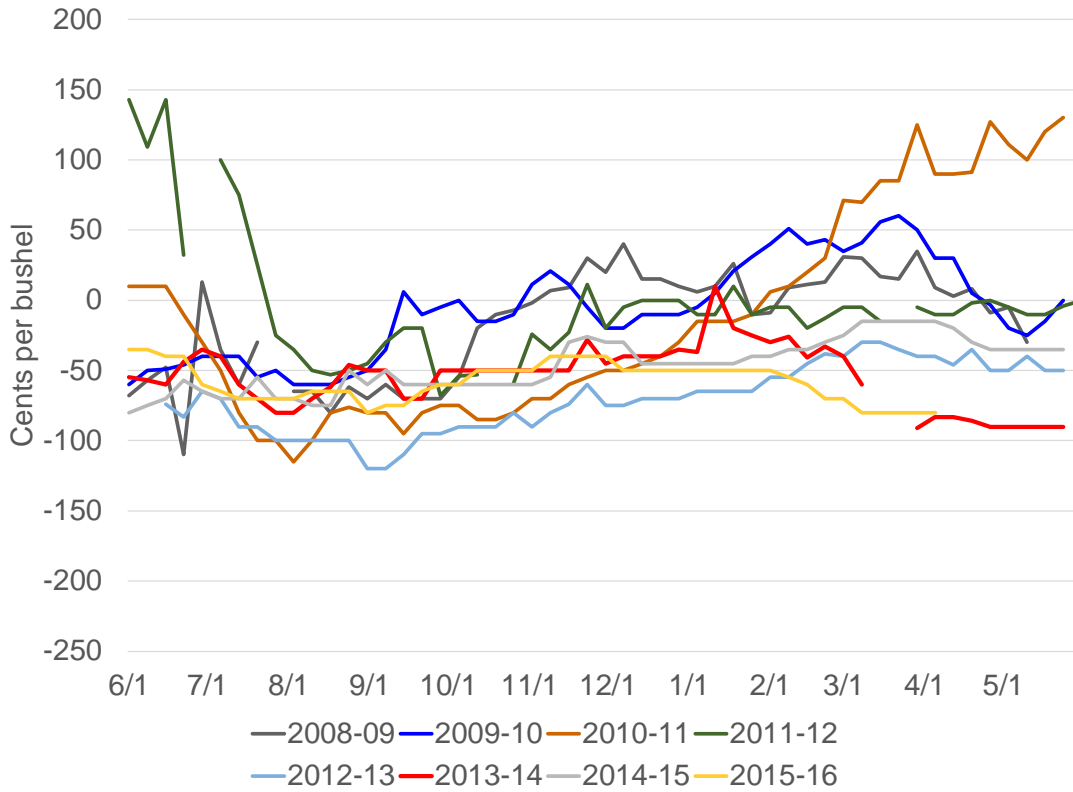


Figure 27. Wheat basis for Rugby, North Dakota

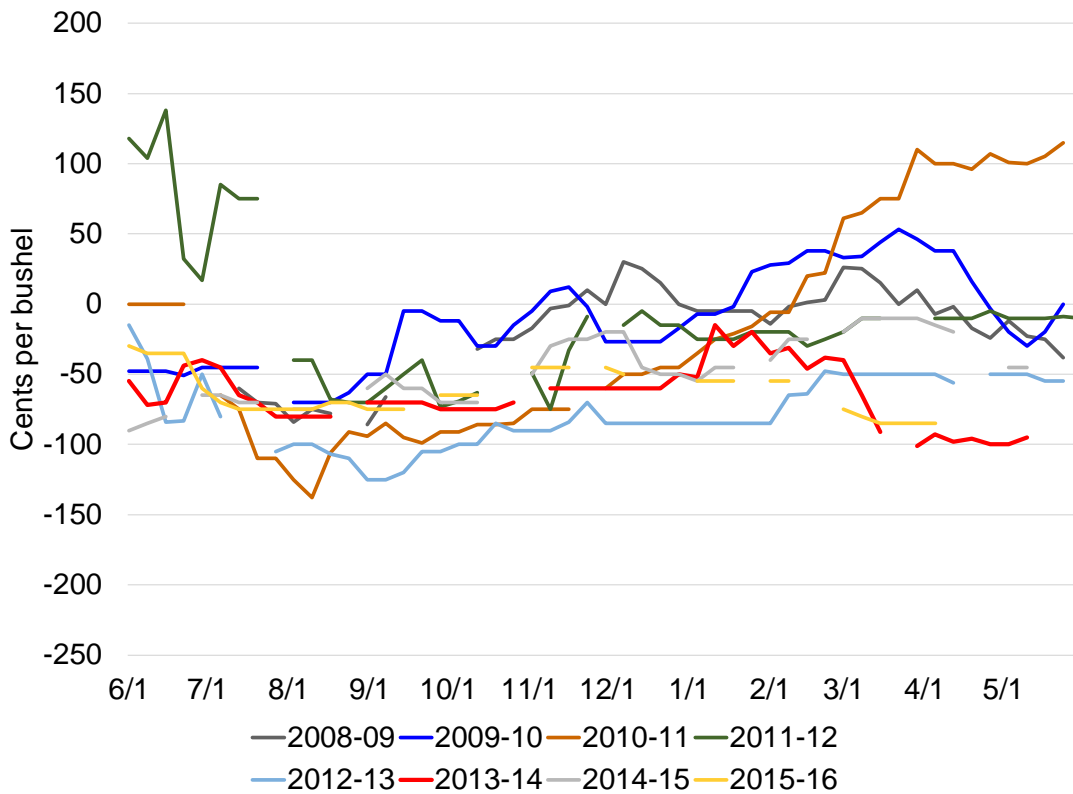


Figure 28. Wheat basis for Berthold, North Dakota

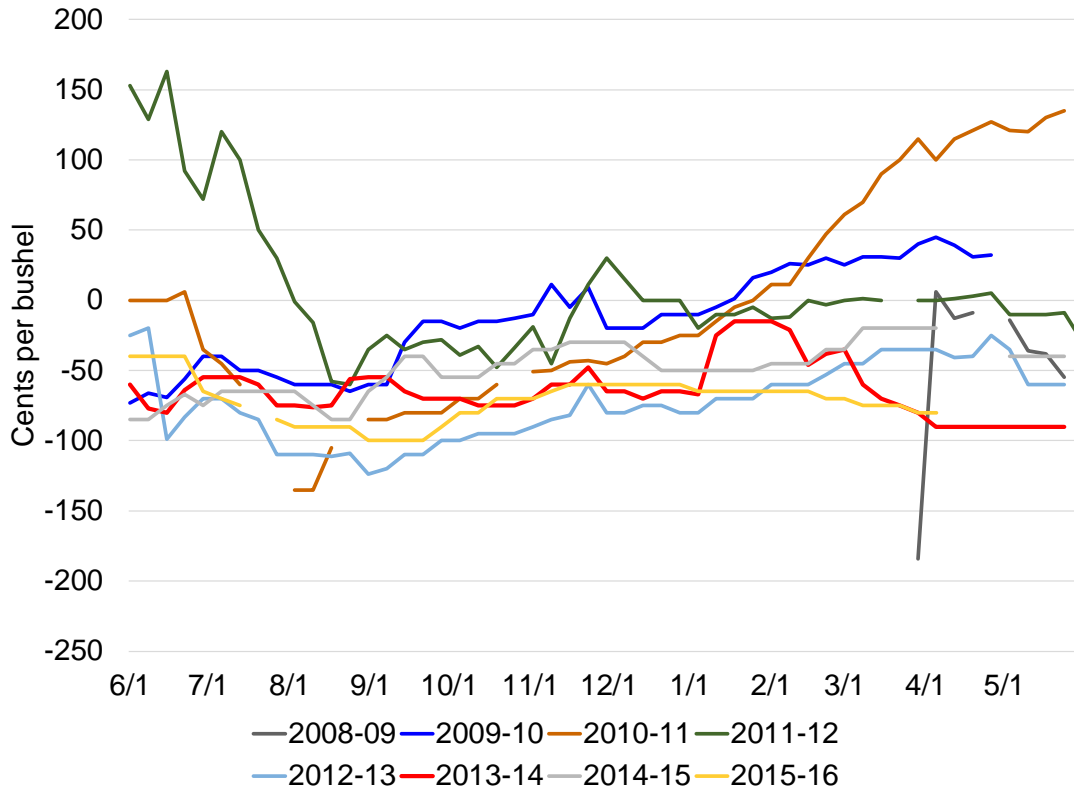


Figure 29. Wheat basis for Williston, North Dakota

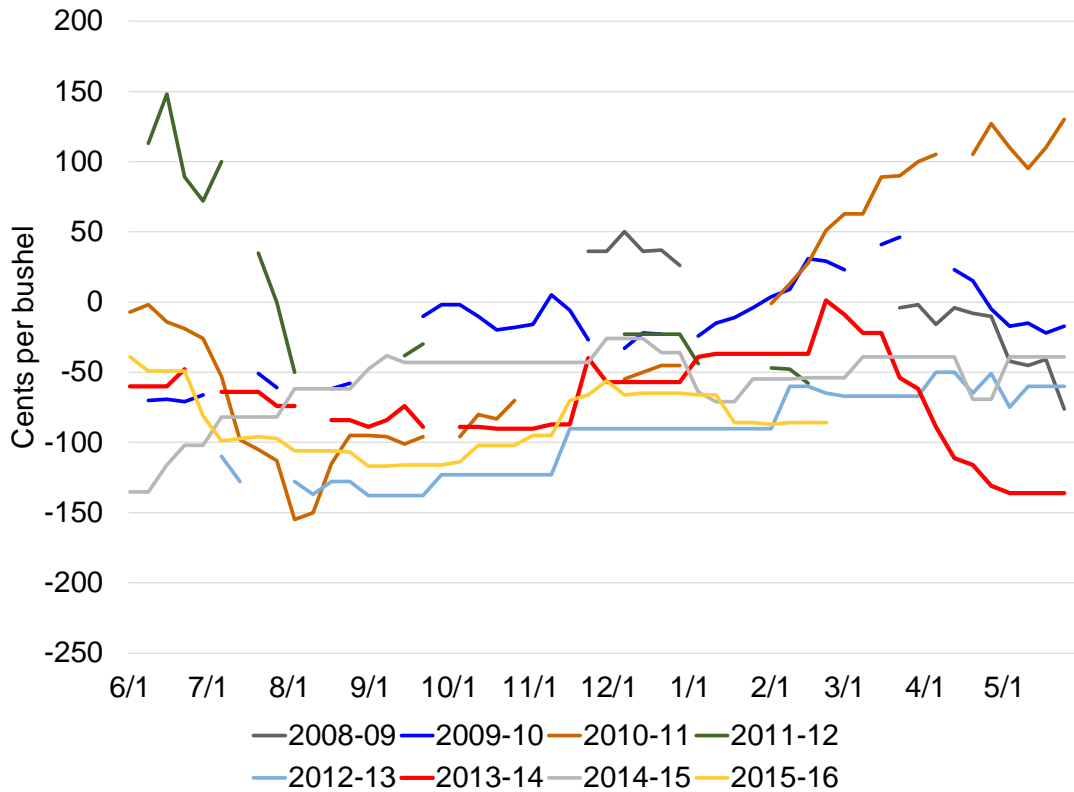


Figure 30. Wheat basis for Wolf Point, Montana

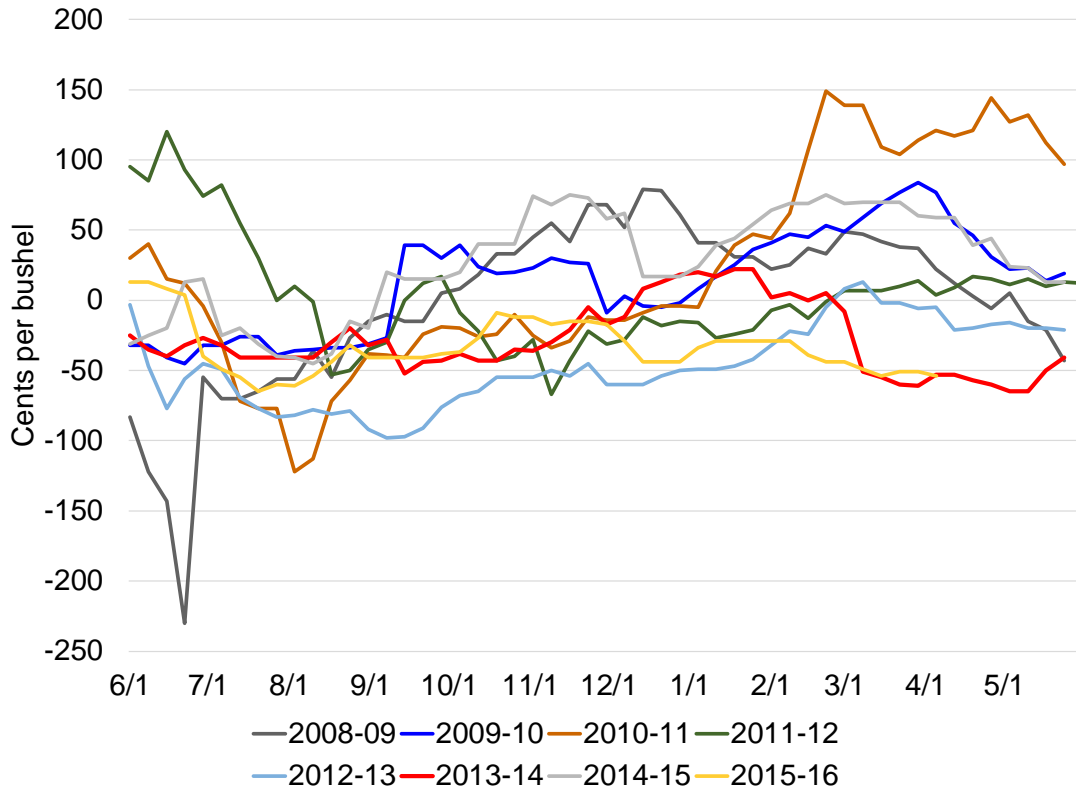
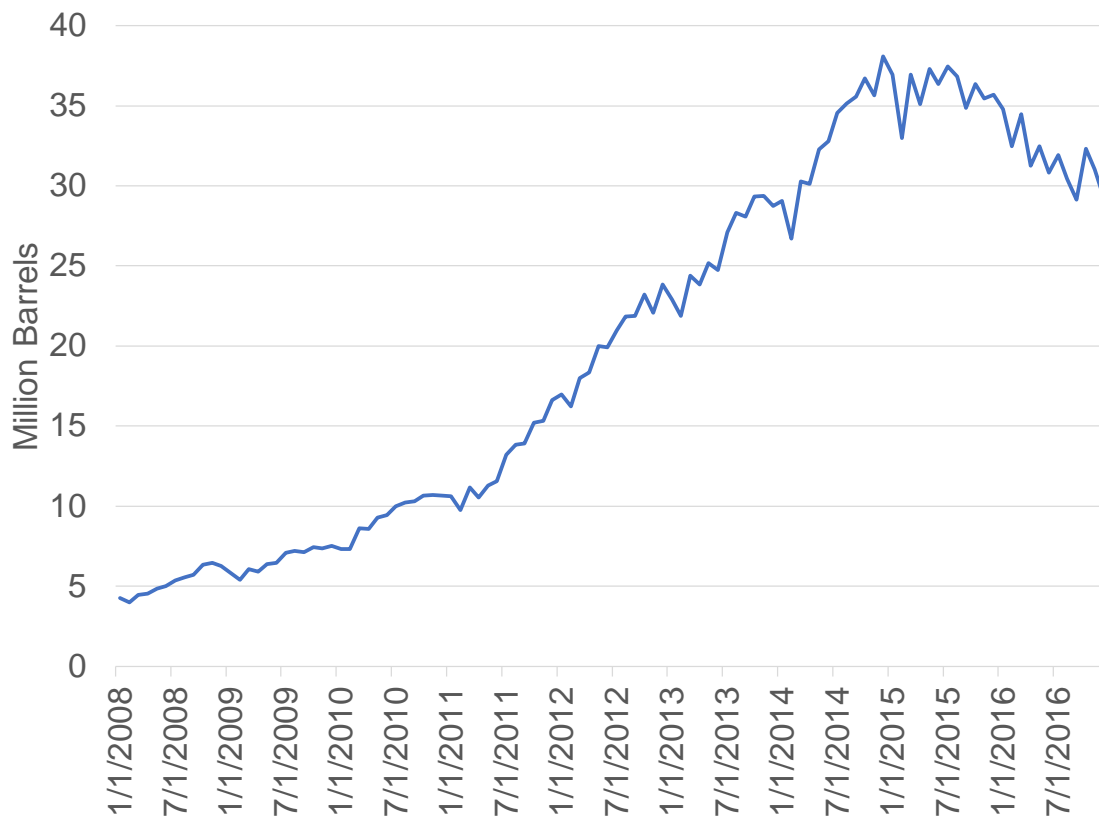


Figure 31. North Dakota Oil Production





To examine the relationships for wheat basis, the researchers at North Dakota State University investigated the impacts from the basis of two well-reported end markets (Minneapolis and Portland), the wheat export sales figures (from current sales to a 4-week lag), rail costs, and market timing. Unlike the situation for corn and soybeans earlier, local demand for wheat in these markets is minimal. Thus, the largest demand factor is export demand. The original regressions included weekly export sales from the current week to a 4 week lag. The following model was estimated, which differs somewhat from the earlier one for corn.

$$\begin{aligned} \text{Basis} = & b_0 + b_1(\text{Sep–Nov}) + b_2(\text{Dec–Feb}) + b_3(\text{Mar–May}) + b_4(\text{Minneapolis 20 Day To-Arrive}) \\ & + b_5(\text{Portland 30 Day To-Arrive}) + b_6(\text{Weekly Export Sales 2 Week Lag}) \\ & + b_7(\text{Weekly Export Sales 3 Week Lag}) + b_8(\text{Weekly Export Sales 4 Week Lag}) \\ & + b_9(\text{North Dakota Tariff Rate}) + b_{10}(\text{Montana Tariff Rate}) \\ & + b_{11}(\text{Shuttle, Secondary Market}) + b_{12}(\text{Non-Shuttle, Secondary Market}) \\ & + b_{13}(\text{Carry}) + b_{14}(\text{Nearby Futures}) + e \end{aligned}$$

where  $e$  is the error term and

- Sep – Nov = Indicator variable if months of Sept, Oct, and Nov; Yes: 1; No: 0.
- Dec – Feb = Indicator variable if months of Dec, Jan, and Feb; Yes: 1; No: 0.
- Mar – May = Indicator variable if months of Mar, Apr, and May; Yes: 1; No: 0.
- Minneapolis 20 Day To-Arrive Truck Basis = The basis quote for the 20 day to-arrive 14% moisture wheat at Minneapolis from the Minneapolis Daily Basis Report, USDA-AMS report MS\_GR112.
- Portland 30 Day To-Arrive Rail Basis = The calculated basis for the 30 day to-arrive 14% moisture wheat at Portland from the Portland Daily Grain Report, USDA-AMS report JO\_GR110.
- Weekly All - Wheat Export Sales – 2 Week Lag = Weekly wheat export sales in the U.S., lagged 2 weeks.
- Weekly All - Wheat Export Sales – 3 Week Lag = Weekly wheat export sales in the U.S., lagged 3 weeks.
- Weekly All - Wheat Export Sales – 4 Week Lag = Weekly wheat export sales in the U.S., lagged 4 weeks.
- North Dakota Tariff Rate + FSC = The monthly rail tariff rate for wheat from Grand Forks, ND, to Portland, OR. Data come from Table 7 of AMS' Grain Transportation Report.
- Montana Tariff Rate + FSC = The monthly rail tariff rate for wheat from Great Falls, MT, to Portland, OR. Data come from Table 7 of AMS' Grain Transportation Report.
- Shuttle – Secondary Market = The weekly average price in the secondary railcar market for shuttle trains. Data come from Table 6 of AMS' Grain Transportation Report.

- Non-Shuttle – Secondary Market – Previous Month = The weekly average price in the secondary railcar market for non-shuttle trains. Data come from Table 6 of AMS’ Grain Transportation Report.
- Shuttle – Secondary Market – Previous Month = The weekly average price in the secondary railcar market for shuttle trains, lagged one month.
- Carry in Futures Market = The difference between the futures prices for the two shortest maturity Minneapolis wheat futures contracts.
- Nearby Futures Price = The futures prices for the nearby Minneapolis wheat futures contract.

Table 4 outlines the results for the 5 markets. As the table displays, the lagged export values were statistically significant. The regression parameters held the expected signs, positive impacts from exports and terminal basis levels and negative impacts from transportation costs. The coefficients on the tariff rate and fuel surcharge effects are inflated as the tariff rates and surcharges are measured in dollars, whereas the basis is measured in cents. The results show that increases in the tariff rates, fuel surcharges, and the costs of transportation in the secondary markets have a direct, inverse impact on basis. As transportation costs rise, basis levels weaken. Meanwhile, as demand increases (as evidenced in this case by the export levels), basis levels strengthen.

Table 4. Regression estimates for wheat basis

	Harvey	Rugby	Berthold	Williston	Wolf Point
Adjusted R Square	0.7507	0.7885	0.7879	0.7531	0.8618
Constant	137.06	105.32	178.37	139.17	82.89
Sep – Nov				-11.972	8.642
Dec – Feb		-6.862			7.814
Mar – May					6.671
Minneapolis 20 Day To-Arrive Truck Basis	0.9513	0.928	0.9536	0.9301	0.5453
Portland 30 Day To-Arrive Rail Basis	0.3085	0.3899	0.3772	0.405	0.5975
Weekly All - Wheat Export Sales – 2 Week Lag	0.0481	0.0464		0.0712	0.0378
Weekly All - Wheat Export Sales – 3 Week Lag	0.0519	0.0568	0.0825		
Weekly All - Wheat Export Sales – 4 Week Lag	0.0553		0.0763	0.0754	
North Dakota Tariff Rate + FSC	-194.25	-179.73	-242.9		
Montana Tariff Rate + FSC				-312.93	-200.22
Shuttle – Secondary Market					-0.0046
Non-Shuttle - Secondary Market – Previous Month				-0.0093	
Shuttle – Secondary Market – Previous Month	-0.0165	-0.0197	-0.0165	-0.0061	-0.012
Carry in Futures Market	-0.3904	-0.3228	-0.5154	-0.5929	-0.2067
Nearby Futures Price	2.6051	2.543	4.949	2.9934	

Note: Only statistically significant parameter estimates are shown.

## Conclusions

Basis is the difference between the local cash price and the futures price for a crop. It also reflects the relative strengths of local demand versus local supply for a crop. In this report, we examined many of the factors that influence basis levels and changes. Transportation costs are a major component in basis setting. Higher transportation costs translate into weaker basis levels. And transportation disruptions influence basis by either delaying shipments or forcing shippers to use alternative (and likely higher costing) transportation routes or methods. But transportation issues are not the only factor to basis setting. Natural disasters, such as droughts, do not impact transportation flows, but can have a significant effect on crop production. This influence on crop production upsets the relative balance of local supply/demand and often sends basis levels higher. The addition of more local crop demand, such as with the construction of the ethanol industry, has also strengthened basis. So there are a number of factors that influence basis at any given time and the influence of these factors on basis levels depends on the specific combination of crop, location, and time period.

## **New Indicators for the Grain Transportation Report**

Based on the analysis for this report and discussions with AMS staff, we have several recommendations for the inclusion of basis information in the Grain Transportation Report (GTR). The first, and easiest, recommendation is to add basis information to the “Grain Bid Summary” provided in the GTR. The summary appears in most, if not all, editions of the GTR and already contains all of the information needed to compute basis (the cash and futures prices). The current basis information could be incorporated into the existing summary map, or if that would make it too crowded, in a parallel basis summary map. Given the rich archive of the GTR, the historical basis information for the points in the Grain Bid Summary could also be computed and made available to users of the GTR.

Second, as the earlier regressions showed, transportation costs are a major factor for grain basis. That makes sense as crop merchandizers adjust their basis bids to take advantage of marketing and purchasing opportunities and need to cover the transportation costs between the purchase and sale points. In most cases, it was the cost data from the secondary transportation markets that were linked with basis levels. Thus, we recommend AMS continue to provide information on prices in the secondary rail transportation markets in the GTR.

Third, especially in the case for wheat, cross-border crop movements with Canada is an understudied issue. And with corn and soybean production expanding in the northern Great Plains, the potential for that movement could have impacts for those markets as well. One of the barriers to examining the cross-border movement and the pricing and basis impacts is the lack of detailed pricing data, especially along the North Dakota and Montana borders with Canada. The NDSU team’s work focused on five markets that will provide needed information when and why cross-border shipments occur. AMS staff should continue to track these markets to the extent able, by expanding its price coverage in the Upper Plains.

## Appendix A. Regression variables

**VARIABLES** - The following are descriptions of each variable used in the regression.

- PRODUCT - Annual regional production of grain in 1000 bushels (1)
- CHG BASIS - The change in basis between the previous two recorded data-points
- ETHANOL - The statewide cumulative capacity of ethanol production in million gallons (2)
- LIVESTOCK - The total annual statewide livestock, measured in head of cattle (1)
- EXPORTS - The total national weekly exports of grain in 1000 bushels (3)
- JAN-APRIL - An indicator variable indicating the data-point occurs during January and April
- MAY-AUG - An indicator variable indicating the data-point occurs during May and August
- SEPT-NOV - An indicator variable indicating the data-point occurs during September and November
- HURRICANE - An indicator variable indicating a two week period after a hurricane impacts the major Gulf of Mexico ports
- S&P - The price of the S&P Index on the date of the data-point
- DIESEL - The price of diesel (4)
- GULF - The ocean freight rate from the Gulf of Mexico ports to Japan (4)
- ILL RIVER - The Illinois River barge rate as a percentage of the tariff rate (4)
- PNW - The ocean freight rate from Pacific Northwest ports to Japan (4)
- SEC-UNIT - The price of the near-month secondary rail unit market bid (4)
- SEC-SHUT - The price of the near-month secondary rail shuttle market bid (4)
- MAT-UNIT - The price of the monthly average tariff on a rail unit with fuel surcharge (\$/car) (4)
- MAT-SHUT - The price of the monthly average tariff on a rail shuttle with fuel surcharge (\$/car) (4)
- TWC - The spot barge rate at ports including Minneapolis, St. Paul, and Red Wing (5)
- MM - The spot barge rate at ports including Albany, Keithsburg, and New Boston (5)
- ILL - The spot barge rate at ports including Beardstown, Florence, and Hardin (5)
- ST LOUIS - The spot barge rate at ports including Alton, Chester, E. St. Louis, and Faults, IL (5)
- CINC - The spot barge rate at ports in Cincinnati (5)
- LOH - The spot barge rate at ports in Louisville, KY (5)
- CAR-MEM - The spot barge rate Birds Point, Linda, and New Madrid, MO, and Hickman, KY (5)
- LAG - The basis from the previous time period
- DISRUP-1 - A indicator variable indicating TWC was disrupted in that period
- DISRUP-2 - A indicator variable indicating TWC and MM are both disrupted in that period

The sources for these variables are provided in Appendix B (as noted by the parentheses after each variable).

## Appendix B. Sources for regression variables

### (1) Production & Livestock

This data was collected from the National Agricultural Statistics Service, USDA. The source offers data on a number of agricultural statistics. Links: <https://quickstats.nass.usda.gov/>, <http://ndb.nal.usda.gov>.

### (2) Ethanol

This data was collected from Chad Hart's dataset on ethanol production plants, mainly derived from the ethanol plant list from the Renewable Fuels Association. Link: <http://ethanolrfa.org/resources/biorefinery-locations/>

### (3) Exports

This data was collected from the Foreign Agricultural Service, USDA. Link: <http://apps.fas.usda.gov/export-sales/h401.htm>

### (4) Transportation

This data was collected from the Transportation & Marketing Programs, AMS, USDA. They offer weekly changes in truck, rail, barge, and ocean freight rates using diesel prices, nearby secondary rail market rates, Illinois barge rates, and ocean freight rates from U.S. Gulf and PNW to Japan as proxies. Links: <http://www.ams.usda.gov/services/transportation-analysis/gtr-datasets>, <http://www.ams.usda.gov/sites/default/files/media/GTRTable1.xlsx>

### (5) Spot Barge Rates

This data was collected from the Transportation & Marketing Programs, AMS, USDA. They offer weekly barge rates for major grain shipping points on the Mississippi, Ohio, and Arkansas Rivers. Link: <http://www.ams.usda.gov/sites/default/files/media/GTRTable9.xlsx>

## Appendix C. Regression results

AR NORTHERN VAL\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000231*** (5.40)	0.00000231*** (5.41)	0.00000269*** (6.20)	0.00000245*** (5.68)	0.00000230*** (5.27)	0.00000482*** (11.53)	0.00000396*** (9.54)		
chgbasis	0.486*** (16.62)	0.486*** (16.62)	0.486*** (16.36)	0.486*** (16.34)	0.486*** (16.20)	0.481*** (15.93)	0.490*** (16.15)	0.488*** (16.07)	0.490*** (16.08)
cumcapet~1	-0.00268*** (-14.50)	-0.00268*** (-14.51)	-0.00295*** (-15.74)	-0.00306*** (-16.42)	-0.00369*** (-19.88)	-0.00378*** (-20.26)	-0.00430*** (-23.39)	-0.00500*** (-29.48)	-0.00576*** (-35.62)
exports	-0.000000622 (-0.49)	-0.000000613 (-0.49)	-0.00000192 (-1.50)	-0.00000202 (-1.58)	0.000000711 (0.55)	0.000000711 (0.61)	0.000000785 (-2.86)	-0.00000361** (-3.63)	-0.00000458*** (-7.34)
janapril	-5.885*** (-5.34)	-5.886*** (-5.34)	-6.308*** (-5.63)						
mayaug	0.834 (0.65)	0.818 (0.64)	0.524 (0.40)	6.040*** (7.07)	3.978*** (4.64)	5.242*** (6.09)	5.629*** (6.52)	5.997*** (6.94)	6.667*** (6.35)
septnov	2.796* (2.11)	2.790* (2.11)	0.204 (0.15)	4.832*** (4.56)	6.370*** (5.97)	7.978*** (7.46)	5.684*** (5.35)	6.070*** (5.71)	6.719*** (5.61)
hurricane	-0.967 (-0.38)								
econcrisis	-86.15*** (-26.84)	-86.58*** (-28.77)							
diesel	-3.458*** (-3.35)	-3.485*** (-3.38)	-3.975*** (-3.80)	-4.996*** (-4.84)	-8.927*** (-8.71)	-9.386*** (-9.10)	-18.48*** (-22.38)	-20.79*** (-26.29)	-17.43*** (-22.94)
gulf	-1.071*** (-22.56)	-1.070*** (-22.56)	-1.043*** (-21.66)	-1.050*** (-21.80)					
illriver	-0.0857*** (-25.53)	-0.0856*** (-25.53)	-0.0958*** (-28.29)	-0.0920*** (-27.71)	-0.0841*** (-25.25)	-0.0570*** (-18.82)	-0.0517*** (-17.12)	-0.0556*** (-18.53)	-0.0581*** (-19.31)
pnw	1.109*** (15.16)	1.109*** (15.16)	1.079*** (14.53)	1.106*** (14.91)	-0.398*** (-14.46)	-0.404*** (-14.59)			
secunit	0.0355*** (18.70)	0.0354*** (18.83)	0.0415*** (21.90)	0.0419*** (22.12)	0.0359*** (18.97)				
matunit	0.0376*** (16.68)	0.0376*** (16.71)	0.0325*** (14.25)	0.0335*** (14.73)	0.0373*** (16.34)	0.0362*** (15.73)	0.0484*** (22.54)	0.0484*** (22.49)	0.0204*** (21.72)
matshuttle	-0.0342*** (-17.14)	-0.0342*** (-17.14)	-0.0280*** (-13.90)	-0.0276*** (-13.70)	-0.0300*** (-14.77)	-0.0332*** (-16.29)	-0.0348*** (-17.05)	-0.0271*** (-14.43)	
disrup2	2.197* (2.46)	2.196* (2.46)	2.577** (2.84)	2.937** (3.25)	2.771** (3.04)	2.890** (3.15)	1.876* (2.04)	1.829* (1.99)	1.764 (1.63)
disrup1									0.900 (0.76)
_cons	45.88*** (15.59)	45.83*** (15.59)	43.87*** (14.70)	36.36*** (13.61)	35.96*** (13.34)	39.92*** (14.75)	29.08*** (11.13)	21.50*** (8.62)	1.581 (0.74)
N	26460	26460	26460	26460	26460	26460	26460	26460	26460
R-sq	0.214	0.214	0.189	0.188	0.174	0.162	0.156	0.153	0.146

t statistics in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

## AR EAST CENTRAL\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000280*** (33.53)	0.00000280*** (33.53)	0.00000286*** (34.15)	0.00000285*** (34.05)	0.00000300*** (36.69)	0.00000303*** (36.92)	0.00000291*** (36.63)		
chgbasis	0.449*** (17.62)	0.449*** (17.62)	0.464*** (18.17)	0.464*** (18.18)	0.467*** (18.25)	0.469*** (18.29)	0.471*** (18.39)	0.471*** (18.04)	0.468*** (17.83)
cumcapet~1	-0.0184*** (-60.43)	-0.0184*** (-60.49)	-0.0192*** (-63.63)	-0.0193*** (-64.51)	-0.0205*** (-76.66)	-0.0209*** (-78.22)	-0.0215*** (-87.33)	-0.0205*** (-82.40)	-0.0175*** (-84.43)
exports	0.0000150*** (15.36)	0.0000150*** (15.36)	0.0000149*** (15.20)	0.0000150*** (15.26)	0.0000166*** (17.18)	0.0000153*** (15.91)	0.0000144*** (15.15)	0.0000122*** (12.67)	0.0000146*** (15.11)
janapril	-3.619*** (-4.45)	-3.616*** (-4.45)	-3.607*** (-4.42)						
mayaug	-7.375*** (-7.95)	-7.365*** (-7.95)	-7.200*** (-7.74)	-4.124*** (-6.68)	-4.569*** (-7.42)	-3.771*** (-6.14)	-3.640*** (-5.93)	-3.822*** (-6.12)	-2.262** (-2.98)
septnov	-4.510*** (-4.63)	-4.509*** (-4.63)	-5.736*** (-5.88)	-3.145*** (-4.04)	-3.182*** (-4.08)	-2.133** (-2.74)	-2.993*** (-3.92)	-1.686* (-2.17)	0.912 (1.05)
hurricane	0.639 (0.37)								
econcrisis	-39.65*** (-16.66)	-39.42*** (-17.20)							
diesel	-22.40*** (-27.39)	-22.39*** (-27.41)	-23.65*** (-28.96)	-24.35*** (-30.40)	-26.53*** (-34.84)	-27.14*** (-35.65)	-29.92*** (-50.96)	-25.37*** (-43.44)	-26.59*** (-45.39)
gulf	-0.356*** (-9.65)	-0.357*** (-9.69)	-0.320*** (-8.67)	-0.320*** (-8.65)					
illriver	-0.0921*** (-37.30)	-0.0921*** (-37.31)	-0.0950*** (-38.42)	-0.0927*** (-38.33)	-0.0866*** (-37.39)	-0.0767*** (-35.17)	-0.0747*** (-34.69)	-0.0833*** (-38.26)	-0.0842*** (-38.39)
pnw	0.339*** (6.07)	0.340*** (6.10)	0.307*** (5.49)	0.319*** (5.70)	-0.130*** (-6.20)	-0.120*** (-5.73)			
secunit	0.0175*** (12.61)	0.0176*** (13.00)	0.0196*** (14.48)	0.0197*** (14.53)	0.0161*** (12.49)				
matunit	0.0458*** (25.58)	0.0458*** (25.58)	0.0436*** (24.33)	0.0446*** (25.12)	0.0449*** (25.24)	0.0431*** (24.28)	0.0472*** (28.99)	0.0507*** (30.66)	0.0776*** (74.81)
matshuttle	0.0309*** (17.48)	0.0309*** (17.47)	0.0365*** (20.97)	0.0366*** (20.97)	0.0402*** (23.75)	0.0423*** (25.08)	0.0427*** (25.31)	0.0359*** (21.02)	
disrup2	5.793*** (8.50)	5.793*** (8.50)	5.683*** (8.30)	5.884*** (8.61)	5.200*** (7.66)	5.340*** (7.85)	4.894*** (7.24)	6.186*** (9.00)	5.459*** (6.84)
disrup1									3.717*** (4.41)
_cons	-76.42*** (-25.43)	-76.35*** (-25.46)	-82.73*** (-27.69)	-87.14*** (-30.95)	-94.40*** (-35.09)	-95.89*** (-35.60)	-101.2*** (-39.97)	-91.80*** (-35.82)	-55.28*** (-29.66)
N	37282	37282	37282	37282	37282	37282	37282	37282	37282
R-sq	0.310	0.310	0.304	0.304	0.303	0.300	0.299	0.274	0.266

t statistics in parentheses

\* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001



## AR NORTHEAST\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000608*** (-33.57)	-0.00000608*** (-33.58)	-0.00000605*** (-33.30)	-0.00000601*** (-33.24)	-0.00000545*** (-30.84)	-0.00000511*** (-29.50)	-0.00000405*** (-24.68)		
chgbasis	0.476*** (16.60)	0.476*** (16.61)	0.489*** (17.02)	0.489*** (17.01)	0.494*** (17.15)	0.494*** (17.13)	0.485*** (16.74)	0.490*** (16.72)	0.487*** (16.53)
cumcapet~1	-0.0149*** (-43.27)	-0.0148*** (-43.19)	-0.0155*** (-45.69)	-0.0155*** (-45.69)	-0.0177*** (-59.38)	-0.0179*** (-60.06)	-0.0156*** (-57.31)	-0.0165*** (-60.50)	-0.0135*** (-59.45)
exports	-0.00000271* (-2.44)	-0.00000280* (-2.52)	-0.00000295** (-2.65)	-0.00000291** (-2.61)	0.000000498 (0.46)	-0.000000279 (-0.26)	0.00000385*** (3.60)	0.00000819*** (7.68)	0.0000114*** (10.71)
janapril	1.915* (2.09)	1.946* (2.13)	1.940* (2.11)						
mayaug	0.232 (0.22)	0.305 (0.29)	0.465 (0.45)	-1.188 (-1.73)	-1.932** (-2.82)	-1.246 (-1.82)	-1.620* (-2.36)	-1.353 (-1.95)	-1.071 (-1.28)
septnov	-4.369*** (-4.01)	-4.356*** (-4.00)	-5.318*** (-4.88)	-6.721*** (-7.77)	-6.718*** (-7.74)	-5.832*** (-6.75)	-2.770** (-3.25)	-4.565*** (-5.32)	-3.473*** (-3.65)
hurricane	5.331** (2.63)								
econcrisis	-35.79*** (-13.25)	-33.69*** (-13.05)							
diesel	-22.80*** (-25.15)	-22.70*** (-25.06)	-23.64*** (-26.11)	-23.27*** (-26.18)	-27.02*** (-31.82)	-27.27*** (-32.09)	-16.95*** (-26.45)	-18.64*** (-28.97)	-20.37*** (-31.69)
gulf	-0.588*** (-14.35)	-0.595*** (-14.55)	-0.567*** (-13.84)	-0.566*** (-13.83)					
illriver	-0.117*** (-41.16)	-0.117*** (-41.19)	-0.120*** (-42.15)	-0.121*** (-43.22)	-0.108*** (-40.82)	-0.0993*** (-40.20)	-0.105*** (-42.46)	-0.0909*** (-37.50)	-0.0889*** (-36.46)
pnw	1.262*** (20.21)	1.273*** (20.42)	1.251*** (20.03)	1.243*** (19.93)	0.446*** (18.72)	0.438*** (18.36)			
secunit	0.0186*** (11.78)	0.0194*** (12.57)	0.0211*** (13.63)	0.0209*** (13.55)	0.0135*** (9.28)				
matunit	0.0569*** (28.13)	0.0569*** (28.11)	0.0549*** (27.13)	0.0544*** (27.09)	0.0541*** (26.88)	0.0518*** (25.91)	0.0368*** (20.05)	0.0327*** (17.72)	0.0610*** (53.52)
matshuttle	0.0227*** (11.49)	0.0225*** (11.39)	0.0274*** (14.11)	0.0274*** (14.11)	0.0345*** (18.38)	0.0361*** (19.27)	0.0336*** (17.88)	0.0369*** (19.47)	
disrup2	7.304*** (9.61)	7.300*** (9.60)	7.201*** (9.44)	7.080*** (9.31)	5.768*** (7.62)	5.930*** (7.83)	7.499*** (9.91)	6.007*** (7.88)	5.987*** (6.71)
disrup1									1.651 (1.77)
_cons	-65.45*** (-19.49)	-64.95*** (-19.37)	-70.50*** (-21.14)	-68.19*** (-21.65)	-82.74*** (-27.78)	-83.46*** (-28.00)	-64.21*** (-22.88)	-75.55*** (-27.03)	-38.66*** (-18.75)
N	30697	30697	30697	30697	30697	30697	30697	30697	30697
R-sq	0.260	0.260	0.256	0.256	0.251	0.249	0.241	0.226	0.216

t statistics in parentheses

\* p&lt;0.05, \*\* p&lt;0.01, \*\*\* p&lt;0.001

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000234*** (-29.56)	-0.000000235*** (-29.63)	-0.000000236*** (-29.82)	-0.000000236*** (-29.74)	-0.000000231*** (-29.24)	-0.000000231*** (-29.18)	-0.000000231*** (-29.32)	-0.000000232***	-0.000000232***
chgbasis	0.463*** (95.79)	0.463*** (95.84)	0.463*** (95.79)	0.463*** (95.77)	0.462*** (95.71)	0.462*** (95.50)	0.461*** (95.34)	0.461*** (95.24)	0.462*** (94.96)
cumcapet~1	-0.00454*** (-93.22)	-0.00454*** (-93.41)	-0.00450*** (-93.12)	-0.00453*** (-94.10)	-0.00471*** (-104.53)	-0.00484*** (-108.14)	-0.00452*** (-105.80)	-0.00463*** (-108.56)	-0.00592*** (-159.67)
exports	-0.0000234*** (-113.57)	-0.0000233*** (-113.44)	-0.0000233*** (-113.24)	-0.0000233*** (-113.28)	-0.0000230*** (-112.75)	-0.0000233*** (-114.26)	-0.0000233*** (-111.89)	-0.0000225*** (-112.65)	-0.0000227*** (-125.21)
janapril	-0.982*** (-5.34)	-0.985*** (-5.36)	-0.983*** (-5.35)						
mayaug	20.60*** (98.52)	20.57*** (98.40)	20.57*** (98.37)	21.42*** (158.78)	21.31*** (158.36)	21.55*** (160.57)	21.51*** (160.17)	21.47*** (159.71)	20.97*** (129.21)
septnov	6.686*** (30.50)	6.673*** (30.43)	6.788*** (31.03)	7.509*** (43.55)	7.568*** (43.91)	7.847*** (45.63)	8.589*** (50.76)	8.499*** (50.18)	7.716*** (41.14)
hurricane	-2.701*** (-6.29)								
econcrisis	5.000*** (9.51)	3.819*** (7.78)							
diesel	-23.51*** (-141.05)	-23.56*** (-141.50)	-23.51*** (-141.29)	-23.67*** (-144.65)	-24.09*** (-151.27)	-24.54*** (-155.37)	-22.13*** (-182.84)	-22.14*** (-182.75)	-20.55*** (-173.01)
gulf	-0.0872*** (-11.30)	-0.0849*** (-11.01)	-0.0870*** (-11.29)	-0.0866*** (-11.24)					
illriver	-0.0866*** (-160.39)	-0.0866*** (-160.30)	-0.0862*** (-160.20)	-0.0856*** (-163.49)	-0.0843*** (-164.89)	-0.0805*** (-167.19)	-0.0825*** (-173.79)	-0.0826*** (-173.75)	-0.0830*** (-173.81)
pnw	0.223*** (18.53)	0.219*** (18.28)	0.222*** (18.47)	0.223*** (18.63)	0.0983*** (22.06)	0.106*** (23.75)			
secunit	0.00754*** (25.40)	0.00720*** (24.67)	0.00699*** (24.04)	0.00699*** (24.03)	0.00613*** (21.85)				
matunit	0.0664*** (175.88)	0.0664*** (176.01)	0.0667*** (177.35)	0.0668*** (178.46)	0.0670*** (178.79)	0.0669*** (178.64)	0.0636*** (182.83)	0.0641*** (184.13)	0.0464*** (248.19)
matshuttle	-0.0213*** (-61.49)	-0.0213*** (-61.37)	-0.0217*** (-63.47)	-0.0217*** (-63.37)	-0.0213*** (-62.49)	-0.0208*** (-61.27)	-0.0207*** (-60.80)	-0.0205*** (-60.31)	
disrup2	-1.329*** (-8.91)	-1.329*** (-8.91)	-1.334*** (-8.94)	-1.263*** (-8.50)	-1.347*** (-9.08)	-1.311*** (-8.83)	-0.936*** (-6.33)	-1.019*** (-6.89)	-0.888*** (-5.13)
disrup1									-0.736*** (-4.05)
_cons	-4.825*** (-7.71)	-4.988*** (-7.98)	-4.597*** (-7.37)	-5.793*** (-9.96)	-6.779*** (-11.79)	-7.488*** (-13.03)	-3.603*** (-6.54)	-11.21*** (-23.02)	-29.89*** (-78.96)
N	454817	454817	454817	454817	454817	454817	454817	454817	454817
R-sq	0.408	0.408	0.408	0.408	0.407	0.407	0.406	0.405	0.400

IA EAST CENTRAL\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000216***	-0.000000215***	-0.000000215***	-0.000000215***	-0.000000215***	-0.000000209***	-0.000000212***	-0.000000211***	
	(-18.12)	(-18.07)	(-18.06)	(-18.09)	(-17.54)	(-17.81)	(-17.78)		
chgbasis	0.464***	0.464***	0.464***	0.464***	0.464***	0.464***	0.464***	0.464***	0.466***
	(63.16)	(63.18)	(63.19)	(63.15)	(63.11)	(63.09)	(63.08)	(63.05)	(62.78)
cumcapet~1	-0.00263***	-0.00263***	-0.00261***	-0.00263***	-0.00297***	-0.00307***	-0.00305***	-0.00311***	-0.00430***
	(-42.39)	(-42.46)	(-42.27)	(-42.83)	(-49.88)	(-51.99)	(-52.71)	(-53.73)	(-81.71)
exports	-0.0000217***	-0.0000217***	-0.0000217***	-0.0000217***	-0.0000211***	-0.0000211***	-0.0000211***	-0.0000214***	-0.0000249***
	(-62.48)	(-62.41)	(-62.30)	(-62.43)	(-60.88)	(-60.91)	(-61.42)	(-62.32)	(-73.87)
janapril	-1.448***	-1.447***	-1.441***						
	(-4.57)	(-4.57)	(-4.55)						
mayaug	22.29***	22.26***	22.26***	23.53***	23.08***	23.28***	23.28***	23.26***	22.23***
	(61.15)	(61.07)	(61.08)	(100.08)	(98.46)	(99.43)	(99.44)	(99.28)	(78.33)
septnov	8.121***	8.098***	8.183***	9.247***	9.461***	9.604***	9.663***	9.616***	8.277***
	(21.38)	(21.32)	(21.57)	(30.97)	(31.66)	(32.14)	(32.82)	(32.63)	(25.20)
hurricane	-4.321***								
	(-4.93)								
econcrisis	5.343***	3.483***							
	(5.55)	(3.93)							
diesel	-21.88***	-21.93***	-21.90***	-22.15***	-23.01***	-23.65***	-23.44***	-23.37***	-20.53***
	(-74.16)	(-74.39)	(-74.30)	(-76.47)	(-80.16)	(-83.52)	(-107.99)	(-107.60)	(-97.68)
gulf	-0.296***	-0.294***	-0.295***	-0.294***					
	(-21.08)	(-20.92)	(-21.02)	(-20.92)					
illriver	-0.104***	-0.104***	-0.104***	-0.103***	-0.0999***	-0.0959***	-0.0960***	-0.0958***	-0.0948***
	(-111.43)	(-111.35)	(-111.43)	(-113.98)	(-111.93)	(-114.22)	(-115.37)	(-114.99)	(-112.93)
pnw	0.433***	0.429***	0.431***	0.433***	-0.00198	0.00976			
	(19.30)	(19.14)	(19.23)	(19.32)	(-0.24)	(1.17)			
secunit	0.00955***	0.00916***	0.00898***	0.00893***	0.00654***				
	(18.41)	(17.88)	(17.59)	(17.50)	(13.13)				
matunit	0.0658***	0.0658***	0.0660***	0.0662***	0.0666***	0.0669***	0.0665***	0.0671***	0.0422***
	(98.20)	(98.23)	(98.77)	(99.46)	(99.89)	(100.32)	(110.72)	(111.67)	(144.26)
matshuttle	-0.0263***	-0.0262***	-0.0265***	-0.0265***	-0.0265***	-0.0261***	-0.0260***	-0.0266***	
	(-46.13)	(-46.01)	(-46.89)	(-46.86)	(-46.70)	(-46.14)	(-46.48)	(-47.46)	
disrup2	-3.088***	-3.094***	-3.105***	-2.953***	-3.154***	-3.189***	-3.164***	-3.217***	-3.043***
	(-11.86)	(-11.89)	(-11.93)	(-11.44)	(-12.21)	(-12.34)	(-12.28)	(-12.47)	(-10.00)
disrup1									-1.176***
									(-3.67)
_cons	14.43***	14.19***	14.33***	12.68***	12.66***	11.51***	11.73***	7.208***	-16.31***
	(15.15)	(14.91)	(15.07)	(14.43)	(14.38)	(13.13)	(13.68)	(8.79)	(-24.67)
N	162591	162591	162591	162591	162591	162591	162591	162591	162591
R-sq	0.421	0.421	0.421	0.421	0.419	0.419	0.419	0.418	0.410

IA NORTH CENTRA\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	3.05e-08** (2.70)	2.97e-08** (2.63)	2.82e-08* (2.50)	2.87e-08* (2.54)	3.30e-08** (2.92)	3.70e-08** (3.28)	3.42e-08** (3.03)		
chgbasis	0.463*** (71.52)	0.464*** (71.56)	0.463*** (71.49)	0.463*** (71.49)	0.463*** (71.44)	0.461*** (71.16)	0.461*** (71.00)	0.461*** (71.00)	0.462*** (70.90)
cumcapet~1	-0.00484*** (-76.58)	-0.00485*** (-76.71)	-0.00480*** (-76.37)	-0.00481*** (-76.99)	-0.00495*** (-84.46)	-0.00511*** (-87.87)	-0.00473*** (-84.56)	-0.00470*** (-85.28)	-0.00585*** (-122.02)
exports	-0.0000259*** (-95.37)	-0.0000258*** (-95.26)	-0.0000258*** (-95.09)	-0.0000258*** (-95.10)	-0.0000255*** (-95.08)	-0.0000259*** (-96.29)	-0.0000249*** (-93.72)	-0.0000249*** (-93.68)	-0.0000268*** (-102.12)
janapril	-0.553* (-2.28)	-0.556* (-2.29)	-0.554* (-2.28)						
mayaug	20.28*** (73.17)	20.25*** (73.07)	20.24*** (73.04)	20.72*** (114.30)	20.63*** (114.14)	20.91*** (115.92)	20.83*** (115.37)	20.83*** (115.41)	20.25*** (92.89)
septnov	7.374*** (25.45)	7.363*** (25.41)	7.498*** (25.93)	7.898*** (34.32)	7.950*** (34.57)	8.286*** (36.09)	9.258*** (40.95)	9.270*** (41.01)	8.428*** (33.65)
hurricane	-2.752*** (-4.66)								
econcrisis	6.058*** (8.46)	4.875*** (7.28)							
diesel	-25.34*** (-113.13)	-25.40*** (-113.49)	-25.33*** (-113.28)	-25.43*** (-115.78)	-25.74*** (-120.18)	-26.29*** (-123.63)	-23.09*** (-140.84)	-23.07*** (-140.83)	-21.46*** (-134.38)
gulf	-0.0667*** (-6.40)	-0.0645*** (-6.19)	-0.0670*** (-6.43)	-0.0669*** (-6.42)					
illriver	-0.0890*** (-123.07)	-0.0889*** (-123.01)	-0.0885*** (-122.83)	-0.0881*** (-125.91)	-0.0872*** (-127.28)	-0.0825*** (-127.72)	-0.0851*** (-133.72)	-0.0851*** (-133.69)	-0.0854*** (-133.58)
pnw	0.229*** (14.07)	0.226*** (13.90)	0.229*** (14.07)	0.230*** (14.16)	0.133*** (22.36)	0.140*** (23.59)			
secunit	0.00887*** (22.43)	0.00856*** (21.95)	0.00830*** (21.37)	0.00830*** (21.37)	0.00763*** (20.40)				
matunit	0.0684*** (133.07)	0.0684*** (133.18)	0.0687*** (134.25)	0.0688*** (134.98)	0.0689*** (135.25)	0.0689*** (135.08)	0.0644*** (135.93)	0.0643*** (136.37)	0.0475*** (194.81)
matshuttle	-0.0201*** (-42.65)	-0.0200*** (-42.56)	-0.0206*** (-44.22)	-0.0205*** (-44.19)	-0.0202*** (-43.77)	-0.0197*** (-42.59)	-0.0192*** (-41.62)	-0.0192*** (-41.58)	
disrup2	-1.195*** (-5.99)	-1.198*** (-6.00)	-1.205*** (-6.04)	-1.162*** (-5.85)	-1.233*** (-6.21)	-1.191*** (-6.00)	-0.707*** (-3.58)	-0.690*** (-3.49)	-0.460* (-1.99)
disrup1									-0.879*** (-3.62)
_cons	-16.15*** (-19.20)	-16.33*** (-19.44)	-15.86*** (-18.93)	-16.54*** (-21.13)	-17.26*** (-22.28)	-18.28*** (-23.63)	-13.49*** (-18.06)	-12.43*** (-18.83)	-30.32*** (-60.22)
N	268435	268435	268435	268435	268435	268435	268435	268435	268435
R-sq	0.417	0.416	0.416	0.416	0.416	0.415	0.414	0.414	0.410

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000265*** (21.91)	0.000000265*** (21.91)	0.000000260*** (21.52)	0.000000260*** (21.52)	0.000000273*** (22.78)	0.000000282*** (23.57)	0.000000279*** (23.36)		
chgbasis	0.457*** (73.67)	0.457*** (73.68)	0.457*** (73.64)	0.457*** (73.64)	0.457*** (73.62)	0.456*** (73.54)	0.456*** (73.51)	0.456*** (73.42)	0.457*** (73.26)
cumcapet~1	-0.00255*** (-45.32)	-0.00255*** (-45.36)	-0.00249*** (-44.50)	-0.00249*** (-44.68)	-0.00265*** (-49.84)	-0.00274*** (-51.89)	-0.00267*** (-52.12)	-0.00257*** (-50.18)	-0.00369*** (-80.28)
exports	-0.0000239*** (-83.92)	-0.0000239*** (-83.90)	-0.0000238*** (-83.55)	-0.0000238*** (-83.56)	-0.0000236*** (-83.05)	-0.0000237*** (-83.53)	-0.0000235*** (-83.67)	-0.0000232*** (-82.64)	-0.0000259*** (-93.75)
janapril	0.0354 (0.14)	0.0343 (0.13)	0.0410 (0.16)						
mayaug	22.53*** (75.65)	22.52*** (75.63)	22.52*** (75.61)	22.48*** (116.98)	22.34*** (116.60)	22.52*** (117.78)	22.52*** (117.80)	22.56*** (117.89)	20.99*** (90.89)
septnov	9.854*** (31.66)	9.848*** (31.64)	10.05*** (32.34)	10.02*** (40.95)	10.10*** (41.30)	10.23*** (41.86)	10.46*** (43.48)	10.50*** (43.60)	8.763*** (32.81)
hurricane	-1.118 (-1.65)								
econcrisis	8.491*** (10.79)	8.001*** (10.98)							
diesel	-26.74*** (-111.69)	-26.76*** (-111.82)	-26.68*** (-111.52)	-26.67*** (-113.45)	-27.07*** (-117.14)	-27.60*** (-121.05)	-26.84*** (-153.91)	-26.67*** (-152.91)	-24.40*** (-144.76)
gulf	-0.101*** (-8.99)	-0.0998*** (-8.92)	-0.103*** (-9.21)	-0.103*** (-9.22)					
illriver	-0.105*** (-136.47)	-0.105*** (-136.46)	-0.104*** (-135.99)	-0.104*** (-140.23)	-0.103*** (-140.89)	-0.0992*** (-145.20)	-0.0997*** (-147.33)	-0.0996*** (-146.94)	-0.0990*** (-145.26)
pnw	0.173*** (9.79)	0.172*** (9.72)	0.176*** (9.95)	0.176*** (9.95)	0.0246*** (3.75)	0.0338*** (5.18)			
secunit	0.00702*** (16.59)	0.00690*** (16.56)	0.00649*** (15.62)	0.00649*** (15.62)	0.00554*** (13.76)				
matunit	0.0680*** (123.40)	0.0680*** (123.41)	0.0685*** (124.58)	0.0685*** (124.99)	0.0686*** (125.37)	0.0689*** (125.84)	0.0677*** (135.90)	0.0671*** (134.71)	0.0460*** (189.62)
matshuttle	-0.0233*** (-48.43)	-0.0233*** (-48.40)	-0.0240*** (-50.34)	-0.0240*** (-50.35)	-0.0239*** (-50.08)	-0.0237*** (-49.59)	-0.0234*** (-49.32)	-0.0230*** (-48.56)	
disrup2	-3.221*** (-15.13)	-3.221*** (-15.13)	-3.239*** (-15.21)	-3.242*** (-15.32)	-3.339*** (-15.80)	-3.363*** (-15.91)	-3.265*** (-15.50)	-3.119*** (-14.80)	-2.295*** (-9.27)
disrup1									-2.341*** (-9.02)
_cons	-12.17*** (-14.69)	-12.24*** (-14.79)	-11.67*** (-14.13)	-11.62*** (-15.16)	-12.13*** (-15.86)	-13.21*** (-17.35)	-12.21*** (-16.58)	-6.016*** (-8.75)	-26.52*** (-49.16)
N	254453	254453	254453	254453	254453	254453	254453	254453	254453
R-sq	0.435	0.435	0.434	0.434	0.434	0.434	0.434	0.433	0.427

IA SOUTH CENTRA\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000149*** (45.41)	0.00000148*** (45.40)	0.00000148*** (45.10)	0.00000147*** (44.99)	0.00000146*** (44.80)	0.00000146*** (44.83)	0.00000147*** (44.89)		
chgbasis	0.469*** (44.82)	0.469*** (44.83)	0.469*** (44.77)	0.469*** (44.78)	0.469*** (44.80)	0.469*** (44.78)	0.469*** (44.71)	0.467*** (44.07)	0.467*** (44.08)
cumcapet~1	-0.00860*** (-59.36)	-0.00860*** (-59.40)	-0.00834*** (-58.27)	-0.00825*** (-58.28)	-0.00796*** (-63.56)	-0.00801*** (-64.77)	-0.00769*** (-66.33)	-0.00737*** (-63.03)	-0.00814*** (-86.12)
exports	-0.0000230*** (-51.20)	-0.0000230*** (-51.19)	-0.0000229*** (-50.97)	-0.0000229*** (-50.98)	-0.0000233*** (-52.41)	-0.0000233*** (-52.48)	-0.0000229*** (-51.97)	-0.0000233*** (-52.29)	-0.0000239*** (-53.89)
janapril	1.816*** (4.50)	1.817*** (4.50)	1.758*** (4.36)						
mayaug	23.24*** (50.55)	23.23*** (50.54)	23.18*** (50.41)	21.67*** (72.25)	21.80*** (73.05)	21.85*** (73.41)	21.85*** (73.39)	21.89*** (72.73)	21.26*** (58.66)
septnov	3.144*** (6.55)	3.136*** (6.53)	3.528*** (7.36)	2.271*** (5.93)	2.303*** (6.02)	2.362*** (6.18)	2.907*** (7.75)	3.168*** (8.36)	2.314*** (5.54)
hurricane	-1.237 (-1.21)								
econcrisis	12.61*** (11.12)	12.08*** (11.57)							
diesel	-27.02*** (-67.68)	-27.03*** (-67.76)	-26.71*** (-67.06)	-26.35*** (-67.62)	-25.85*** (-69.40)	-25.98*** (-70.35)	-24.08*** (-89.73)	-24.73*** (-91.28)	-24.19*** (-90.80)
gulf	0.101*** (5.41)	0.102*** (5.46)	0.0852*** (4.56)	0.0805*** (4.31)					
illriver	-0.0696*** (-57.50)	-0.0695*** (-57.49)	-0.0687*** (-56.89)	-0.0701*** (-60.13)	-0.0714*** (-63.13)	-0.0705*** (-65.71)	-0.0719*** (-68.08)	-0.0728*** (-68.22)	-0.0720*** (-67.49)
pnw	-0.0582* (-2.01)	-0.0595* (-2.06)	-0.0388 (-1.34)	-0.0375 (-1.30)	0.0781*** (7.25)	0.0803*** (7.48)			
secunit	0.00131* (1.99)	0.00119 (1.83)	0.000653 (1.01)	0.000710 (1.10)	0.00153* (2.48)				
matunit	0.0638*** (74.36)	0.0638*** (74.36)	0.0645*** (75.34)	0.0642*** (75.24)	0.0640*** (75.11)	0.0639*** (75.09)	0.0612*** (79.49)	0.0628*** (80.72)	0.0559*** (121.95)
matshuttle	-0.00299*** (-3.50)	-0.00295*** (-3.47)	-0.00474*** (-5.65)	-0.00498*** (-5.95)	-0.00574*** (-7.02)	-0.00553*** (-6.79)	-0.00551*** (-6.77)	-0.00902*** (-11.02)	
disrup2	-4.018*** (-12.16)	-4.021*** (-12.17)	-3.995*** (-12.08)	-4.112*** (-12.47)	-4.001*** (-12.17)	-4.002*** (-12.17)	-3.747*** (-11.46)	-3.934*** (-11.90)	-3.764*** (-9.78)
disrup1									-0.931* (-2.30)
_cons	-60.18*** (-38.08)	-60.27*** (-38.18)	-58.21*** (-37.09)	-55.71*** (-38.12)	-54.12*** (-38.28)	-54.54*** (-38.87)	-51.26*** (-38.45)	-29.88*** (-23.73)	-39.45*** (-44.19)
N	90653	90653	90653	90653	90653	90653	90653	90653	90653
R-sq	0.441	0.441	0.440	0.440	0.440	0.440	0.440	0.427	0.427

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000468*** (-25.84)	-0.000000468*** (-25.84)	-0.000000470*** (-25.91)	-0.000000466*** (-25.72)	-0.000000437*** (-24.22)	-0.000000443*** (-24.55)	-0.000000443*** (-24.79)	-0.000000446***	
chgbasis	0.457*** (51.21)	0.457*** (51.21)	0.457*** (51.18)	0.457*** (51.13)	0.457*** (51.15)	0.457*** (51.12)	0.457*** (51.13)	0.458*** (51.07)	0.460*** (51.04)
cumcapet~1	-0.00285*** (-30.84)	-0.00285*** (-30.88)	-0.00279*** (-30.39)	-0.00285*** (-31.23)	-0.00338*** (-39.72)	-0.00348*** (-41.16)	-0.00353*** (-43.20)	-0.00401*** (-50.51)	-0.00524*** (-76.69)
exports	-0.0000166*** (-42.31)	-0.0000166*** (-42.29)	-0.0000165*** (-42.13)	-0.0000165*** (-42.12)	-0.0000157*** (-40.38)	-0.0000159*** (-40.99)	-0.0000161*** (-41.69)	-0.0000158*** (-40.89)	-0.0000179*** (-46.96)
janapril	-2.058*** (-5.74)	-2.060*** (-5.75)	-2.062*** (-5.75)						
mayaug	19.93*** (49.08)	19.91*** (49.05)	19.90*** (49.01)	21.70*** (83.78)	21.39*** (82.74)	21.61*** (83.75)	21.61*** (83.76)	21.67*** (83.77)	21.04*** (67.55)
septnov	6.614*** (15.59)	6.606*** (15.58)	6.766*** (15.98)	8.271*** (24.84)	8.383*** (25.16)	8.611*** (25.88)	8.478*** (25.91)	8.308*** (25.33)	7.398*** (20.38)
hurricane	-1.434 (-1.61)								
econcrisis	6.480*** (6.17)	5.856*** (6.00)							
diesel	-22.14*** (-68.32)	-22.17*** (-68.46)	-22.09*** (-68.26)	-22.44*** (-70.59)	-23.49*** (-75.47)	-24.03*** (-78.11)	-24.46*** (-102.89)	-24.76*** (-104.01)	-23.25*** (-99.56)
gulf	-0.244*** (-16.02)	-0.243*** (-15.96)	-0.246*** (-16.18)	-0.244*** (-16.05)					
illriver	-0.0964*** (-92.23)	-0.0964*** (-92.22)	-0.0959*** (-92.02)	-0.0944*** (-93.48)	-0.0909*** (-92.08)	-0.0872*** (-93.92)	-0.0869*** (-94.81)	-0.0865*** (-94.16)	-0.0866*** (-93.81)
pnw	0.323*** (13.50)	0.321*** (13.44)	0.325*** (13.60)	0.327*** (13.69)	-0.0293*** (-3.31)	-0.0195* (-2.21)			
secunit	0.00881*** (15.39)	0.00865*** (15.35)	0.00834*** (14.86)	0.00834*** (14.86)	0.00593*** (10.96)				
matunit	0.0653*** (88.91)	0.0653*** (88.94)	0.0657*** (89.82)	0.0661*** (90.55)	0.0659*** (90.28)	0.0661*** (90.50)	0.0667*** (98.60)	0.0654*** (96.72)	0.0482*** (137.01)
matshuttle	-0.0247*** (-35.50)	-0.0246*** (-35.47)	-0.0253*** (-36.87)	-0.0252*** (-36.70)	-0.0236*** (-34.78)	-0.0234*** (-34.36)	-0.0234*** (-34.50)	-0.0199*** (-29.90)	
disrup2	-3.745*** (-12.99)	-3.745*** (-12.99)	-3.751*** (-13.01)	-3.582*** (-12.49)	-3.820*** (-13.32)	-3.782*** (-13.18)	-3.845*** (-13.47)	-3.893*** (-13.60)	-3.573*** (-10.62)
disrup1									-1.068** (-3.04)
_cons	10.52*** (8.74)	10.44*** (8.69)	10.98*** (9.16)	8.354*** (7.54)	5.589*** (5.10)	4.932*** (4.50)	4.320*** (4.08)	-7.900*** (-8.40)	-25.87*** (-35.64)
N	118294	118294	118294	118294	118294	118294	118294	118294	118294
R-sq	0.423	0.423	0.423	0.422	0.421	0.421	0.421	0.418	0.413

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-4.14e-08 (-1.40)	-4.11e-08 (-1.39)	-4.48e-08 (-1.51)	-4.67e-08 (-1.58)	-5.69e-08 (-1.93)	-5.51e-08 (-1.87)	-5.64e-08 (-1.90)		
chgbasis	0.461*** (23.76)	0.461*** (23.77)	0.461*** (23.74)	0.461*** (23.75)	0.462*** (23.77)	0.461*** (23.72)	0.460*** (23.63)	0.460*** (23.63)	0.460*** (23.62)
cumcapet~1	-0.00846*** (-32.29)	-0.00848*** (-32.38)	-0.00832*** (-32.07)	-0.00826*** (-32.16)	-0.00772*** (-33.37)	-0.00786*** (-34.38)	-0.00694*** (-32.30)	-0.00704*** (-33.74)	-0.00804*** (-48.07)
exports	-0.0000228*** (-28.74)	-0.0000227*** (-28.68)	-0.0000227*** (-28.61)	-0.0000227*** (-28.64)	-0.0000233*** (-29.72)	-0.0000235*** (-30.01)	-0.0000222*** (-28.64)	-0.0000223*** (-28.71)	-0.0000229*** (-29.65)
janapril	1.172 (1.65)	1.170 (1.64)	1.146 (1.61)						
mayaug	22.25*** (27.53)	22.21*** (27.48)	22.17*** (27.43)	21.18*** (40.59)	21.35*** (40.99)	21.52*** (41.44)	21.39*** (41.11)	21.37*** (41.08)	20.56*** (32.78)
septnov	6.561*** (7.77)	6.548*** (7.76)	6.786*** (8.05)	5.958*** (8.93)	5.943*** (8.91)	6.120*** (9.19)	7.658*** (11.71)	7.608*** (11.64)	6.598*** (9.13)
hurricane	-3.233 (-1.95)								
econcrisis	10.00*** (4.77)	8.669*** (4.37)							
diesel	-29.86*** (-43.80)	-29.94*** (-44.01)	-29.73*** (-43.80)	-29.51*** (-44.38)	-28.59*** (-44.87)	-28.97*** (-45.95)	-24.26*** (-50.16)	-24.30*** (-50.31)	-23.80*** (-49.69)
gulf	0.158*** (5.02)	0.161*** (5.12)	0.154*** (4.89)	0.152*** (4.84)					
illriver	-0.0799*** (-37.52)	-0.0798*** (-37.49)	-0.0792*** (-37.27)	-0.0800*** (-38.82)	-0.0825*** (-41.30)	-0.0797*** (-42.47)	-0.0837*** (-45.30)	-0.0837*** (-45.29)	-0.0837*** (-45.20)
pnw	-0.0184 (-0.39)	-0.0221 (-0.47)	-0.0148 (-0.31)	-0.0157 (-0.33)	0.197*** (11.21)	0.203*** (11.61)			
secunit	0.00361** (3.11)	0.00320** (2.81)	0.00281* (2.47)	0.00283* (2.48)	0.00445*** (4.09)				
matunit	0.0731*** (50.09)	0.0732*** (50.18)	0.0737*** (50.65)	0.0735*** (50.72)	0.0732*** (50.54)	0.0732*** (50.55)	0.0672*** (49.60)	0.0674*** (49.91)	0.0589*** (72.40)
matshuttle	-0.00809*** (-5.41)	-0.00802*** (-5.36)	-0.00922*** (-6.27)	-0.00935*** (-6.37)	-0.0109*** (-7.58)	-0.0104*** (-7.27)	-0.0115*** (-8.05)	-0.0113*** (-7.92)	
disrup2	-2.251*** (-3.89)	-2.253*** (-3.89)	-2.240*** (-3.87)	-2.315*** (-4.01)	-2.106*** (-3.66)	-2.091*** (-3.63)	-1.299* (-2.27)	-1.333* (-2.33)	-0.785 (-1.17)
disrup1									-1.528* (-2.17)
_cons	-46.42*** (-16.41)	-46.73*** (-16.54)	-45.28*** (-16.14)	-43.65*** (-16.69)	-40.18*** (-15.97)	-41.06*** (-16.37)	-31.19*** (-13.19)	-33.28*** (-15.90)	-44.53*** (-29.77)
N	30592	30592	30592	30592	30592	30592	30592	30592	30592
R-sq	0.438	0.438	0.437	0.437	0.437	0.436	0.434	0.434	0.433



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	3.85e-08*** (15.46)	3.85e-08*** (15.46)	3.78e-08*** (15.20)	3.78e-08*** (15.19)	3.89e-08*** (15.61)	3.77e-08*** (15.12)	3.78e-08*** (15.23)		
chgbasis	0.456*** (89.47)	0.456*** (89.47)	0.457*** (89.51)	0.457*** (89.49)	0.457*** (89.43)	0.456*** (89.32)	0.456*** (89.31)	0.456*** (89.30)	0.457*** (89.05)
cumcapet~1	-0.00169*** (-40.12)	-0.00168*** (-40.09)	-0.00173*** (-41.31)	-0.00174*** (-41.80)	-0.00210*** (-52.59)	-0.00218*** (-55.18)	-0.00218*** (-56.58)	-0.00215*** (-55.84)	-0.00310*** (-89.93)
exports	-0.0000164*** (-76.55)	-0.0000164*** (-76.60)	-0.0000165*** (-76.95)	-0.0000165*** (-77.00)	-0.0000158*** (-74.26)	-0.0000160*** (-75.01)	-0.0000159*** (-75.72)	-0.0000159*** (-75.42)	-0.0000183*** (-88.11)
janapril	-0.650*** (-3.35)	-0.649*** (-3.35)	-0.658*** (-3.39)						
mayaug	22.54*** (101.43)	22.54*** (101.49)	22.55*** (101.48)	23.12*** (160.11)	22.79*** (158.14)	22.97*** (159.73)	22.97*** (159.73)	22.96*** (159.57)	22.34*** (128.41)
septnov	9.149*** (39.31)	9.153*** (39.33)	8.990*** (38.70)	9.472*** (51.56)	9.688*** (52.72)	9.864*** (53.73)	9.889*** (54.79)	9.864*** (54.64)	9.012*** (45.01)
hurricane	0.751 (1.51)								
econcrisis	-6.231*** (-10.75)	-5.915*** (-10.95)							
diesel	-16.41*** (-92.44)	-16.40*** (-92.45)	-16.46*** (-92.83)	-16.57*** (-95.22)	-17.52*** (-102.36)	-18.00*** (-106.28)	-17.92*** (-137.48)	-17.84*** (-136.95)	-15.93*** (-126.31)
gulf	-0.239*** (-29.27)	-0.240*** (-29.35)	-0.238*** (-29.15)	-0.238*** (-29.10)					
illriver	-0.0957*** (-166.75)	-0.0957*** (-166.82)	-0.0963*** (-168.47)	-0.0958*** (-172.86)	-0.0928*** (-170.24)	-0.0893*** (-174.71)	-0.0893*** (-176.85)	-0.0891*** (-176.47)	-0.0890*** (-175.36)
pnw	0.341*** (26.60)	0.342*** (26.67)	0.340*** (26.55)	0.342*** (26.66)	-0.00429 (-0.89)	0.00347 (0.73)			
secunit	0.00742*** (23.35)	0.00750*** (23.95)	0.00784*** (25.14)	0.00782*** (25.10)	0.00562*** (18.58)				
matunit	0.0546*** (133.66)	0.0546*** (133.65)	0.0542*** (133.18)	0.0544*** (134.03)	0.0547*** (134.78)	0.0548*** (135.10)	0.0547*** (146.67)	0.0544*** (145.95)	0.0364*** (199.56)
matshuttle	-0.0209*** (-58.24)	-0.0209*** (-58.29)	-0.0204*** (-57.31)	-0.0204*** (-57.29)	-0.0199*** (-56.09)	-0.0197*** (-55.36)	-0.0196*** (-55.53)	-0.0195*** (-55.20)	
disrup2	-0.260 (-1.63)	-0.259 (-1.63)	-0.243 (-1.53)	-0.186 (-1.18)	-0.388* (-2.46)	-0.402* (-2.54)	-0.391* (-2.49)	-0.406** (-2.58)	-0.319 (-1.73)
disrup1									-0.654*** (-3.36)
_cons	-0.513 (-0.88)	-0.467 (-0.80)	-0.809 (-1.39)	-1.578** (-2.95)	-2.387*** (-4.46)	-3.083*** (-5.77)	-2.989*** (-5.77)	-1.543** (-3.03)	-19.09*** (-47.42)
N	379344	379344	379344	379344	379344	379344	379344	379344	379344
R-sq	0.392	0.392	0.391	0.391	0.390	0.390	0.390	0.389	0.384

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000409*** (40.76)	0.000000409*** (40.83)	0.000000398*** (39.56)	0.000000400*** (39.75)	0.000000420*** (41.47)	0.000000435*** (42.90)	0.000000413*** (40.74)		
chgbasis	0.463*** (52.48)	0.463*** (52.50)	0.466*** (52.56)	0.465*** (52.50)	0.466*** (52.19)	0.464*** (51.91)	0.467*** (52.10)	0.467*** (51.92)	0.467*** (51.88)
cumcapet~1	-0.00434*** (-64.00)	-0.00435*** (-64.08)	-0.00464*** (-68.35)	-0.00468*** (-69.29)	-0.00590*** (-90.62)	-0.00616*** (-95.38)	-0.00657*** (-104.27)	-0.00619*** (-98.94)	-0.00677*** (-120.60)
exports	-0.0000142*** (-42.38)	-0.0000141*** (-42.31)	-0.0000146*** (-43.65)	-0.0000147*** (-43.69)	-0.0000125*** (-37.16)	-0.0000130*** (-38.68)	-0.0000145*** (-43.58)	-0.0000144*** (-43.14)	-0.0000159*** (-48.55)
janapril	-2.130*** (-6.99)	-2.130*** (-6.99)	-2.196*** (-7.17)						
mayaug	15.70*** (45.16)	15.67*** (45.10)	15.69*** (44.94)	17.59*** (77.62)	16.68*** (73.19)	17.23*** (75.67)	17.29*** (75.82)	17.40*** (76.07)	17.61*** (63.74)
septnov	6.699*** (18.39)	6.686*** (18.36)	5.562*** (15.24)	7.167*** (24.85)	8.014*** (27.60)	8.564*** (29.50)	7.230*** (25.21)	7.575*** (26.33)	7.623*** (23.89)
hurricane	-2.220** (-3.03)								
econcrisis	-36.63*** (-42.52)	-37.55*** (-46.53)							
diesel	-8.326*** (-30.47)	-8.368*** (-30.66)	-8.777*** (-32.03)	-9.133*** (-33.88)	-12.46*** (-46.86)	-13.59*** (-51.49)	-18.27*** (-89.97)	-18.14*** (-88.99)	-16.96*** (-86.12)
gulf	-0.779*** (-62.01)	-0.778*** (-61.94)	-0.765*** (-60.67)	-0.765*** (-60.65)					
illriver	-0.105*** (-117.91)	-0.105*** (-117.87)	-0.109*** (-122.34)	-0.107*** (-124.05)	-0.0973*** (-113.72)	-0.0883*** (-109.72)	-0.0850*** (-106.62)	-0.0851*** (-106.44)	-0.0855*** (-106.63)
pnw	0.897*** (45.54)	0.895*** (45.47)	0.885*** (44.73)	0.890*** (45.03)	-0.222*** (-29.91)	-0.206*** (-27.76)			
secunit	0.0195*** (39.50)	0.0193*** (39.56)	0.0216*** (44.42)	0.0216*** (44.43)	0.0145*** (30.54)				
matunit	0.0547*** (85.69)	0.0548*** (85.77)	0.0522*** (81.66)	0.0526*** (82.63)	0.0537*** (83.77)	0.0539*** (84.00)	0.0607*** (101.78)	0.0581*** (97.71)	0.0470*** (161.78)
matshuttle	-0.0180*** (-31.76)	-0.0180*** (-31.70)	-0.0141*** (-24.98)	-0.0140*** (-24.94)	-0.0121*** (-21.38)	-0.0113*** (-19.98)	-0.0126*** (-22.18)	-0.0121*** (-21.34)	
disrup2	3.455*** (13.94)	3.452*** (13.93)	3.557*** (14.29)	3.724*** (15.02)	3.116*** (12.48)	3.140*** (12.56)	2.536*** (10.16)	2.741*** (10.95)	2.290*** (7.82)
disrup1									0.679* (2.19)
_cons	-14.10*** (-15.12)	-14.27*** (-15.34)	-16.69*** (-17.88)	-19.31*** (-22.47)	-23.42*** (-27.14)	-25.37*** (-29.42)	-30.84*** (-36.67)	-20.70*** (-25.68)	-31.97*** (-50.85)
N	235674	235674	235674	235674	235674	235674	235674	235674	235674
R-sq	0.314	0.314	0.308	0.307	0.297	0.294	0.292	0.287	0.285

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	7.51e-08*** (22.25)	7.52e-08*** (22.28)	7.29e-08*** (21.56)	7.30e-08*** (21.59)	7.92e-08*** (23.41)	8.12e-08*** (23.99)	7.74e-08*** (22.92)		
chgbasis	0.452*** (86.89)	0.452*** (86.94)	0.453*** (86.92)	0.453*** (86.92)	0.452*** (86.69)	0.451*** (86.37)	0.451*** (86.40)	0.451*** (86.31)	0.451*** (85.90)
cumcapet~1	-0.00220*** (-46.66)	-0.00220*** (-46.76)	-0.00237*** (-50.44)	-0.00237*** (-50.88)	-0.00308*** (-69.82)	-0.00321*** (-73.39)	-0.00336*** (-78.99)	-0.00319*** (-76.09)	-0.00445*** (-121.83)
exports	-0.0000177*** (-85.90)	-0.0000177*** (-85.78)	-0.0000179*** (-86.65)	-0.0000179*** (-86.67)	-0.0000168*** (-81.74)	-0.0000170*** (-82.44)	-0.0000173*** (-85.09)	-0.0000174*** (-85.08)	-0.0000197*** (-97.61)
janapril	-0.198 (-1.06)	-0.197 (-1.06)	-0.211 (-1.13)						
mayaug	23.68*** (111.39)	23.66*** (111.30)	23.68*** (111.21)	23.86*** (173.63)	23.36*** (170.14)	23.58*** (172.05)	23.59*** (172.05)	23.57*** (171.86)	23.34*** (140.88)
septnov	8.395*** (37.70)	8.380*** (37.64)	7.891*** (35.46)	8.045*** (45.69)	8.266*** (46.85)	8.491*** (48.18)	8.062*** (46.44)	8.128*** (46.80)	7.533*** (39.15)
hurricane	-2.717*** (-5.46)								
econcrisis	-17.92*** (-31.45)	-19.05*** (-35.88)							
diesel	-11.73*** (-68.27)	-11.78*** (-68.63)	-11.98*** (-69.75)	-12.02*** (-71.21)	-13.43*** (-80.70)	-14.01*** (-85.15)	-15.47*** (-122.31)	-15.44*** (-121.99)	-13.61*** (-110.19)
gulf	-0.384*** (-47.15)	-0.383*** (-46.99)	-0.374*** (-45.90)	-0.374*** (-45.89)					
illriver	-0.0902*** (-162.65)	-0.0901*** (-162.57)	-0.0918*** (-166.06)	-0.0917*** (-171.12)	-0.0868*** (-164.94)	-0.0828*** (-166.90)	-0.0817*** (-166.75)	-0.0818*** (-166.91)	-0.0819*** (-166.07)
pnw	0.487*** (37.75)	0.486*** (37.63)	0.475*** (36.78)	0.476*** (36.81)	-0.0755*** (-15.82)	-0.0664*** (-13.95)			
secunit	0.00952*** (30.98)	0.00926*** (30.50)	0.0103*** (33.88)	0.0103*** (33.87)	0.00668*** (22.78)				
matunit	0.0550*** (141.11)	0.0551*** (141.26)	0.0539*** (138.65)	0.0540*** (139.26)	0.0543*** (139.84)	0.0546*** (140.53)	0.0568*** (159.13)	0.0561*** (157.66)	0.0377*** (200.73)
matshuttle	-0.0241*** (-68.75)	-0.0241*** (-68.67)	-0.0223*** (-64.06)	-0.0222*** (-64.05)	-0.0209*** (-60.34)	-0.0206*** (-59.40)	-0.0210*** (-60.58)	-0.0210*** (-60.66)	
disrup2	0.923*** (6.11)	0.919*** (6.08)	0.960*** (6.34)	0.977*** (6.49)	0.649*** (4.30)	0.659*** (4.37)	0.454** (3.03)	0.452** (3.01)	0.136 (0.77)
disrup1									0.0335 (0.18)
_cons	-0.120 (-0.20)	-0.295 (-0.49)	-1.517* (-2.50)	-1.780** (-3.17)	-4.284*** (-7.65)	-5.367*** (-9.62)	-7.312*** (-13.53)	-2.809*** (-5.57)	-22.75*** (-58.44)
N	445553	445553	445553	445553	445553	445553	445553	445553	445553
R-sq	0.369	0.369	0.368	0.368	0.365	0.364	0.364	0.363	0.358

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	1.06e-09 (0.28)	1.06e-09 (0.28)	2.66e-10 (0.07)	1.39e-10 (0.04)	-3.14e-11 (-0.01)	-3.26e-10 (-0.09)	-1.31e-09 (-0.35)		
chgbasis	0.460*** (60.34)	0.460*** (60.35)	0.460*** (60.25)	0.459*** (60.24)	0.461*** (60.20)	0.461*** (60.12)	0.461*** (60.14)	0.461*** (60.14)	0.462*** (59.87)
cumcapet~1	-0.00113*** (-24.29)	-0.00113*** (-24.35)	-0.00119*** (-25.54)	-0.00120*** (-25.80)	-0.00151*** (-33.12)	-0.00159*** (-35.01)	-0.00162*** (-36.14)	-0.00162*** (-36.38)	-0.00222*** (-52.57)
exports	-0.0000143*** (-41.30)	-0.0000143*** (-41.22)	-0.0000145*** (-41.85)	-0.0000145*** (-41.93)	-0.0000137*** (-39.36)	-0.0000138*** (-39.71)	-0.0000140*** (-40.68)	-0.0000140*** (-40.71)	-0.0000177*** (-53.09)
janapril	-0.967** (-3.05)	-0.970** (-3.06)	-1.015** (-3.20)						
mayaug	19.94*** (54.92)	19.91*** (54.84)	19.89*** (54.75)	20.78*** (88.39)	20.15*** (85.64)	20.41*** (86.80)	20.41*** (86.82)	20.41*** (86.82)	20.25*** (71.57)
septnov	7.353*** (19.29)	7.338*** (19.26)	6.988*** (18.35)	7.736*** (25.73)	8.229*** (27.30)	8.471*** (28.10)	8.303*** (27.90)	8.303*** (27.90)	8.123*** (24.67)
hurricane	-3.256*** (-3.81)								
econcrisis	-15.40*** (-14.64)	-16.89*** (-17.30)							
diesel	-15.34*** (-52.83)	-15.40*** (-53.10)	-15.44*** (-53.19)	-15.59*** (-54.49)	-16.77*** (-58.81)	-17.66*** (-62.86)	-18.26*** (-82.60)	-18.26*** (-82.61)	-15.29*** (-72.55)
gulf	-0.481*** (-35.10)	-0.479*** (-34.97)	-0.477*** (-34.82)	-0.477*** (-34.82)					
illriver	-0.114*** (-119.66)	-0.114*** (-119.60)	-0.115*** (-121.67)	-0.115*** (-124.48)	-0.109*** (-119.91)	-0.104*** (-121.36)	-0.103*** (-121.93)	-0.103*** (-121.93)	-0.105*** (-122.89)
pnw	0.676*** (30.64)	0.673*** (30.52)	0.670*** (30.34)	0.672*** (30.48)	-0.0417*** (-5.11)	-0.0282*** (-3.47)			
secunit	0.0124*** (23.54)	0.0121*** (23.23)	0.0129*** (24.99)	0.0129*** (24.98)	0.00891*** (17.62)				
matunit	0.0567*** (84.37)	0.0568*** (84.49)	0.0558*** (83.30)	0.0560*** (83.81)	0.0562*** (83.82)	0.0569*** (84.84)	0.0579*** (94.99)	0.0579*** (95.00)	0.0348*** (132.78)
matshuttle	-0.0229*** (-41.60)	-0.0229*** (-41.56)	-0.0218*** (-39.73)	-0.0218*** (-39.75)	-0.0223*** (-40.60)	-0.0224*** (-40.68)	-0.0227*** (-41.86)	-0.0227*** (-41.94)	
disrup2	0.223 (0.86)	0.219 (0.85)	0.282 (1.09)	0.375 (1.46)	0.0834 (0.32)	0.0357 (0.14)	-0.0355 (-0.14)	-0.0355 (-0.14)	-0.193 (-0.63)
disrup1									0.233 (0.73)
_cons	1.449 (1.69)	1.274 (1.49)	0.876 (1.02)	-0.243 (-0.31)	1.485 (1.90)	0.805 (1.03)	0.151 (0.20)	0.131 (0.17)	-18.14*** (-28.53)
N	153584	153584	153584	153584	153584	153584	153584	153584	153584
R-sq	0.394	0.394	0.393	0.393	0.388	0.387	0.387	0.387	0.380

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-1.57e-08*** (-4.05)	-1.56e-08*** (-4.01)	-1.54e-08*** (-3.97)	-1.52e-08*** (-3.90)	-1.50e-08*** (-3.85)	-1.57e-08*** (-4.04)	-1.17e-08** (-3.01)		
chgbasis	0.457*** (82.48)	0.457*** (82.50)	0.457*** (82.49)	0.457*** (82.50)	0.457*** (82.52)	0.457*** (82.53)	0.457*** (82.44)	0.457*** (82.44)	0.457*** (82.43)
cumcapet~1	-0.00493*** (-80.51)	-0.00494*** (-80.63)	-0.00491*** (-80.83)	-0.00486*** (-80.56)	-0.00492*** (-87.67)	-0.00503*** (-90.46)	-0.00485*** (-91.15)	-0.00486*** (-91.30)	-0.00556*** (-122.89)
exports	-0.0000123*** (-51.72)	-0.0000123*** (-51.65)	-0.0000123*** (-51.58)	-0.0000123*** (-51.53)	-0.0000122*** (-51.61)	-0.0000123*** (-52.23)	-0.0000120*** (-51.21)	-0.0000120*** (-51.33)	-0.0000129*** (-55.69)
janapril	1.492*** (6.84)	1.489*** (6.83)	1.489*** (6.83)						
mayaug	21.98*** (88.48)	21.96*** (88.43)	21.96*** (88.41)	20.66*** (128.67)	20.63*** (128.87)	20.81*** (130.27)	20.81*** (130.23)	20.81*** (130.22)	19.93*** (104.08)
septnov	8.226*** (31.67)	8.218*** (31.63)	8.272*** (31.91)	7.191*** (35.02)	7.203*** (35.09)	7.351*** (35.84)	7.781*** (38.63)	7.775*** (38.60)	6.817*** (30.76)
hurricane	-1.851*** (-3.38)								
econcrisis	2.776*** (4.33)	2.019*** (3.36)							
diesel	-23.54*** (-115.68)	-23.57*** (-115.93)	-23.54*** (-115.90)	-23.27*** (-116.77)	-23.38*** (-120.37)	-23.84*** (-124.25)	-22.46*** (-153.97)	-22.47*** (-154.18)	-21.71*** (-152.53)
gulf	-0.0211* (-2.22)	-0.0195* (-2.07)	-0.0208* (-2.07)	-0.0223* (-2.36)					
illriver	-0.102*** (-158.29)	-0.102*** (-158.25)	-0.101*** (-158.49)	-0.102*** (-165.35)	-0.102*** (-168.68)	-0.0991*** (-174.19)	-0.100*** (-178.04)	-0.100*** (-178.01)	-0.0997*** (-177.17)
pnw	0.0875*** (5.97)	0.0854*** (5.83)	0.0866*** (5.91)	0.0842*** (5.75)	0.0521*** (9.52)	0.0603*** (11.06)			
secunit	0.00552*** (15.49)	0.00530*** (15.13)	0.00520*** (14.90)	0.00523*** (14.98)	0.00501*** (14.89)				
matunit	0.0611*** (133.45)	0.0611*** (133.49)	0.0612*** (134.14)	0.0609*** (134.07)	0.0609*** (134.13)	0.0611*** (134.35)	0.0591*** (141.61)	0.0591*** (141.62)	0.0504*** (226.47)
matshuttle	-0.0108*** (-25.15)	-0.0107*** (-25.06)	-0.0110*** (-25.91)	-0.0110*** (-26.08)	-0.0109*** (-25.99)	-0.0105*** (-25.11)	-0.0103*** (-24.70)	-0.0103*** (-24.70)	
disrup2	-2.487*** (-14.00)	-2.489*** (-14.01)	-2.491*** (-14.02)	-2.620*** (-14.83)	-2.647*** (-15.01)	-2.656*** (-15.06)	-2.459*** (-14.01)	-2.469*** (-14.06)	-1.871*** (-9.09)
disrup1									-1.527*** (-7.10)
_cons	-27.46*** (-38.49)	-27.59*** (-38.74)	-27.39*** (-38.60)	-25.55*** (-38.93)	-25.76*** (-39.64)	-26.63*** (-41.14)	-24.60*** (-39.62)	-24.94*** (-40.85)	-34.65*** (-76.20)
N	264195	264195	264195	264195	264195	264195	264195	264195	264195
R-sq	0.470	0.470	0.470	0.470	0.470	0.469	0.469	0.469	0.468

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000830*** (17.38)	0.000000828*** (17.35)	0.000000800*** (16.72)	0.000000795*** (16.62)	0.000000763*** (15.92)	0.000000824*** (17.37)	0.000000828*** (17.56)		
chgbasis	0.468*** (21.42)	0.468*** (21.41)	0.472*** (21.55)	0.472*** (21.56)	0.476*** (21.66)	0.473*** (21.55)	0.473*** (21.54)	0.473*** (21.46)	0.473*** (21.46)
cumcapet~1	-0.0134*** (-49.00)	-0.0134*** (-48.98)	-0.0141*** (-52.06)	-0.0138*** (-51.74)	-0.0159*** (-66.95)	-0.0162*** (-68.90)	-0.0161*** (-74.67)	-0.0162*** (-74.86)	-0.0151*** (-85.72)
exports	-0.00000249** (-2.89)	-0.00000252** (-2.92)	-0.00000286*** (-3.32)	-0.00000292*** (-3.38)	-0.000000740 (-0.86)	-0.00000113 (-1.32)	-0.00000103 (-1.22)	-0.00000171* (-2.01)	-0.000000856 (-1.01)
janapril	4.300*** (5.64)	4.305*** (5.64)	4.461*** (5.83)						
mayaug	14.46*** (16.76)	14.49*** (16.80)	14.69*** (16.99)	10.85*** (19.34)	10.29*** (18.32)	10.64*** (18.99)	10.63*** (18.98)	11.06*** (19.70)	12.12*** (17.98)
septnov	-0.544 (-0.60)	-0.529 (-0.58)	-1.721 (-1.89)	-4.942*** (-6.84)	-4.862*** (-6.72)	-4.367*** (-6.05)	-4.233*** (-5.97)	-3.342*** (-4.72)	-2.109** (-2.69)
hurricane	2.580 (1.40)								
econcrisis	-35.66*** (-16.66)	-34.49*** (-17.49)							
diesel	-16.52*** (-22.66)	-16.48*** (-22.62)	-17.36*** (-23.81)	-16.53*** (-23.12)	-20.24*** (-29.78)	-21.01*** (-31.18)	-20.57*** (-41.66)	-20.97*** (-42.40)	-21.64*** (-44.35)
gulf	-0.575*** (-17.20)	-0.578*** (-17.29)	-0.538*** (-16.10)	-0.544*** (-16.29)					
illriver	-0.1000*** (-43.85)	-0.100*** (-43.90)	-0.103*** (-45.06)	-0.106*** (-47.68)	-0.0964*** (-44.88)	-0.0901*** (-44.60)	-0.0905*** (-45.65)	-0.0937*** (-47.33)	-0.0937*** (-47.23)
pnw	0.814*** (16.06)	0.818*** (16.15)	0.776*** (15.30)	0.771*** (15.21)	0.00465 (0.25)	0.0183 (0.97)			
secunit	0.0139*** (11.06)	0.0142*** (11.46)	0.0161*** (13.01)	0.0161*** (12.99)	0.0101*** (8.55)				
matunit	0.0703*** (44.95)	0.0703*** (44.94)	0.0678*** (43.39)	0.0670*** (43.04)	0.0679*** (43.55)	0.0680*** (43.57)	0.0674*** (46.37)	0.0660*** (45.32)	0.0757*** (87.82)
matshuttle	-0.000520 (-0.33)	-0.000589 (-0.37)	0.00484** (3.09)	0.00421** (2.69)	0.0104*** (6.85)	0.0114*** (7.52)	0.0113*** (7.47)	0.0127*** (8.42)	
disrup2	3.100*** (5.05)	3.100*** (5.05)	3.023*** (4.91)	2.824*** (4.59)	2.064*** (3.36)	2.091*** (3.40)	2.169*** (3.56)	2.645*** (4.33)	1.991** (2.77)
disrup1									1.915* (2.51)
_cons	-70.86*** (-25.14)	-70.66*** (-25.10)	-76.08*** (-27.11)	-69.77*** (-26.94)	-81.64*** (-32.78)	-84.18*** (-34.02)	-83.28*** (-36.33)	-73.86*** (-33.06)	-61.53*** (-37.48)
N	56593	56593	56593	56593	56593	56593	56593	56593	56593
R-sq	0.267	0.267	0.263	0.263	0.259	0.259	0.259	0.254	0.254

IL SOUTHWEST\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000930*** (-40.26)	-0.000000928*** (-40.20)	-0.000000966*** (-41.71)	-0.000000965*** (-41.64)	-0.00000103*** (-44.59)	-0.00000103*** (-42.16)	-0.000000979*** (-42.56)	-0.000000988***	
chgbasis	0.474*** (40.25)	0.474*** (40.26)	0.477*** (40.28)	0.476*** (40.26)	0.483*** (40.63)	0.485*** (40.65)	0.486*** (40.76)	0.484*** (40.41)	0.484*** (40.36)
cumcapet~1	-0.0110*** (-79.07)	-0.0110*** (-79.23)	-0.0117*** (-84.50)	-0.0118*** (-85.83)	-0.0139*** (-109.06)	-0.0146*** (-115.08)	-0.0149*** (-124.54)	-0.0154*** (-128.55)	-0.0141*** (-143.63)
exports	0.00000955*** (19.54)	0.00000960*** (19.65)	0.00000925*** (18.86)	0.00000926*** (18.88)	0.0000118*** (24.25)	0.0000110*** (22.47)	0.0000105*** (21.62)	0.0000110*** (22.48)	0.0000122*** (25.14)
janapril	-1.767*** (-4.05)	-1.776*** (-4.07)	-1.685*** (-3.85)						
mayaug	9.178*** (18.51)	9.131*** (18.42)	9.303*** (18.69)	10.76*** (33.44)	9.704*** (30.11)	10.49*** (32.52)	10.50*** (32.56)	10.27*** (31.67)	10.86*** (27.84)
septnov	2.697*** (5.15)	2.671*** (5.10)	1.327* (2.53)	2.549*** (6.11)	2.752*** (6.56)	3.493*** (8.32)	2.834*** (6.89)	2.225*** (5.39)	3.086*** (6.78)
hurricane	-4.355*** (-4.21)								
econcrisis	-43.69*** (-34.56)	-45.52*** (-38.34)							
diesel	-15.59*** (-37.60)	-15.67*** (-37.84)	-16.63*** (-40.06)	-16.96*** (-41.76)	-20.76*** (-52.30)	-23.05*** (-58.70)	-25.00*** (-83.58)	-25.04*** (-83.29)	-25.99*** (-87.62)
gulf	-0.807*** (-42.70)	-0.803*** (-42.54)	-0.772*** (-40.78)	-0.771*** (-40.70)					
illriver	-0.132*** (-101.35)	-0.132*** (-101.28)	-0.136*** (-104.11)	-0.135*** (-106.29)	-0.123*** (-99.28)	-0.108*** (-92.94)	-0.106*** (-93.01)	-0.106*** (-91.93)	-0.106*** (-92.12)
pnw	1.001*** (34.67)	0.995*** (34.51)	0.968*** (33.45)	0.971*** (33.57)	-0.122*** (-11.25)	-0.0827*** (-7.66)			
secunit	0.0291*** (40.36)	0.0285*** (40.31)	0.0311*** (43.92)	0.0310*** (43.86)	0.0234*** (34.15)				
matunit	0.0601*** (66.28)	0.0602*** (66.35)	0.0574*** (63.25)	0.0577*** (63.92)	0.0579*** (63.75)	0.0586*** (64.31)	0.0612*** (72.59)	0.0640*** (75.82)	0.0768*** (158.84)
matshuttle	0.00176* (1.99)	0.00187* (2.11)	0.00754*** (8.62)	0.00770*** (8.80)	0.0138*** (15.89)	0.0159*** (18.35)	0.0160*** (18.49)	0.0161*** (18.46)	
disrup2	6.556*** (18.42)	6.554*** (18.42)	6.583*** (18.42)	6.697*** (18.80)	5.526*** (15.49)	5.422*** (15.15)	5.122*** (14.40)	4.650*** (13.01)	4.525*** (10.78)
disrup1									0.906* (2.05)
_cons	-45.39*** (-29.96)	-45.73*** (-30.23)	-50.98*** (-33.70)	-53.22*** (-38.13)	-63.49*** (-46.02)	-68.68*** (-49.93)	-72.05*** (-55.27)	-84.49*** (-66.17)	-68.43*** (-73.47)
N	175423	175423	175423	175423	175423	175423	175423	175423	175423
R-sq	0.269	0.268	0.262	0.262	0.255	0.250	0.250	0.242	0.241

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	6.84e-08*** (11.00)	6.86e-08*** (11.03)	6.21e-08*** (9.96)	6.21e-08*** (9.97)	5.44e-08*** (8.69)	6.12e-08*** (9.75)	5.13e-08*** (8.22)		
chgbasis	0.457*** (63.36)	0.457*** (63.36)	0.458*** (63.37)	0.458*** (63.36)	0.461*** (63.45)	0.461*** (63.27)	0.462*** (63.38)	0.462*** (63.37)	0.462*** (63.36)
cumcapet~1	-0.00607*** (-82.74)	-0.00608*** (-82.84)	-0.00641*** (-87.66)	-0.00642*** (-88.39)	-0.00794*** (-117.05)	-0.00830*** (-123.09)	-0.00858*** (-131.95)	-0.00852*** (-131.76)	-0.00843*** (-150.53)
exports	-0.00000747*** (-24.70)	-0.00000745*** (-24.65)	-0.00000778*** (-25.68)	-0.00000779*** (-25.71)	-0.00000578*** (-19.11)	-0.00000578*** (-20.61)	-0.00000624*** (-22.81)	-0.00000685*** (-22.85)	-0.00000686*** (-22.39)
janapril	-0.586* (-2.14)	-0.588* (-2.14)	-0.600* (-2.18)						
mayaug	17.92*** (57.24)	17.90*** (57.16)	17.93*** (57.13)	18.44*** (89.21)	17.47*** (84.37)	18.04*** (87.09)	18.02*** (86.97)	18.01*** (86.91)	17.49*** (70.10)
septnov	8.633*** (26.29)	8.608*** (26.21)	7.781*** (23.69)	8.208*** (31.12)	8.675*** (32.74)	9.079*** (34.21)	8.293*** (31.84)	8.321*** (31.95)	7.893*** (27.46)
hurricane	-3.320*** (-4.52)								
econcrisis	-26.64*** (-33.04)	-28.09*** (-37.96)							
diesel	-14.65*** (-56.48)	-14.68*** (-56.64)	-15.12*** (-58.26)	-15.23*** (-59.88)	-18.32*** (-73.37)	-19.95*** (-80.75)	-22.42*** (-120.52)	-22.38*** (-120.32)	-22.55*** (-125.19)
gulf	-0.692*** (-58.19)	-0.690*** (-58.07)	-0.675*** (-56.67)	-0.674*** (-56.64)					
illriver	-0.123*** (-150.40)	-0.123*** (-150.33)	-0.126*** (-153.60)	-0.125*** (-158.08)	-0.117*** (-149.06)	-0.106*** (-143.71)	-0.104*** (-143.01)	-0.104*** (-143.07)	-0.104*** (-142.92)
pnw	0.856*** (46.18)	0.853*** (46.05)	0.837*** (45.11)	0.839*** (45.21)	-0.135*** (-19.37)	-0.106*** (-15.22)			
secunit	0.0231*** (50.49)	0.0228*** (50.41)	0.0243*** (53.88)	0.0243*** (53.86)	0.0175*** (40.03)				
matunit	0.0542*** (92.07)	0.0542*** (92.06)	0.0524*** (89.14)	0.0525*** (89.80)	0.0532*** (90.53)	0.0539*** (91.51)	0.0575*** (106.77)	0.0572*** (106.45)	0.0587*** (210.03)
matshuttle	-0.00547*** (-10.15)	-0.00539*** (-10.01)	-0.00225*** (-4.22)	-0.00224*** (-4.19)	0.000979 (1.84)	0.00214*** (4.01)	0.00160** (3.01)	0.00163** (3.06)	
disrup2	3.714*** (16.41)	3.709*** (16.39)	3.744*** (16.50)	3.788*** (16.77)	2.974*** (13.12)	2.934*** (12.91)	2.584*** (11.43)	2.598*** (11.49)	3.171*** (12.02)
disrup1									-1.099*** (-3.95)
_cons	-32.17*** (-35.16)	-32.38*** (-35.44)	-34.69*** (-37.97)	-35.43*** (-41.74)	-40.03*** (-47.15)	-43.70*** (-51.64)	-46.83*** (-57.03)	-45.02*** (-56.90)	-42.97*** (-72.40)
N	316191	316191	316191	316191	316191	316191	316191	316191	316191
R-sq	0.317	0.317	0.314	0.314	0.307	0.303	0.303	0.303	0.303



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-5.38e-09 (-0.47)	-5.45e-09 (-0.48)	-5.13e-09 (-0.45)	-5.60e-09 (-0.49)	-8.33e-10 (-0.07)	-3.39e-09 (-0.30)	-5.88e-09 (-0.52)		
chgbasis	0.462*** (58.61)	0.462*** (58.60)	0.462*** (58.59)	0.462*** (58.59)	0.462*** (58.60)	0.462*** (58.57)	0.462*** (58.58)	0.462*** (58.58)	0.462*** (58.56)
cumcapet~1	-0.00833*** (-73.34)	-0.00833*** (-73.34)	-0.00830*** (-73.72)	-0.00828*** (-74.46)	-0.00870*** (-86.29)	-0.00888*** (-89.33)	-0.00892*** (-93.28)	-0.00893*** (-95.89)	-0.00855*** (-117.63)
exports	-0.00000549*** (-16.17)	-0.00000550*** (-16.19)	-0.00000548*** (-16.15)	-0.00000548*** (-16.15)	-0.00000548*** (-15.07)	-0.00000507*** (-15.07)	-0.00000507*** (-15.38)	-0.00000514*** (-15.37)	-0.00000514*** (-14.47)
janapril	0.342 (1.11)	0.342 (1.11)	0.337 (1.09)						
mayaug	19.53*** (55.20)	19.53*** (55.22)	19.53*** (55.20)	19.23*** (84.39)	19.04*** (83.89)	19.19*** (84.70)	19.19*** (84.71)	19.19*** (84.71)	18.65*** (68.72)
septnov	5.788*** (15.72)	5.789*** (15.73)	5.846*** (15.91)	5.602*** (19.22)	5.572*** (19.11)	5.674*** (19.47)	5.586*** (19.49)	5.579*** (19.48)	5.223*** (16.57)
hurricane	0.396 (0.49)								
econcrisis	1.819* (2.03)	1.983* (2.38)							
diesel	-22.64*** (-74.41)	-22.63*** (-74.47)	-22.58*** (-74.48)	-22.51*** (-76.02)	-23.19*** (-80.88)	-23.72*** (-84.14)	-24.03*** (-113.47)	-24.04*** (-113.69)	-24.28*** (-115.90)
gulf	-0.126*** (-8.75)	-0.127*** (-8.78)	-0.129*** (-8.96)	-0.130*** (-9.05)					
illriver	-0.103*** (-110.36)	-0.103*** (-110.38)	-0.103*** (-110.45)	-0.103*** (-115.25)	-0.101*** (-116.22)	-0.0983*** (-120.06)	-0.0981*** (-121.39)	-0.0981*** (-121.54)	-0.0982*** (-121.61)
pnw	0.160*** (7.14)	0.160*** (7.17)	0.163*** (7.30)	0.163*** (7.32)	-0.0239** (-2.87)	-0.0139 (-1.68)			
secunit	0.00623*** (12.15)	0.00627*** (12.39)	0.00618*** (12.24)	0.00620*** (12.31)	0.00498*** (10.25)				
matunit	0.0567*** (88.36)	0.0567*** (88.36)	0.0568*** (88.72)	0.0567*** (88.94)	0.0569*** (89.25)	0.0571*** (89.53)	0.0575*** (100.22)	0.0575*** (100.56)	0.0606*** (171.72)
matshuttle	0.00261*** (4.00)	0.00260*** (3.99)	0.00234*** (3.65)	0.00229*** (3.58)	0.00343*** (5.46)	0.00404*** (6.45)	0.00400*** (6.40)	0.00408*** (6.69)	
disrup2	-2.233*** (-8.86)	-2.232*** (-8.86)	-2.231*** (-8.86)	-2.260*** (-9.02)	-2.418*** (-9.67)	-2.472*** (-9.88)	-2.514*** (-10.10)	-2.517*** (-10.12)	-1.803*** (-6.17)
disrup1									-1.210*** (-3.94)
_cons	-47.63*** (-39.15)	-47.60*** (-39.17)	-47.34*** (-39.11)	-46.85*** (-41.73)	-49.04*** (-44.73)	-50.39*** (-46.29)	-50.88*** (-48.51)	-51.14*** (-55.52)	-46.34*** (-70.63)
N	189625	189625	189625	189625	189625	189625	189625	189625	189625
R-sq	0.360	0.360	0.359	0.359	0.359	0.359	0.359	0.359	0.359

IN NORTHWEST\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000604*** (39.19)	0.000000604*** (39.19)	0.000000598*** (38.77)	0.000000596*** (38.64)	0.000000595*** (38.55)	0.000000600*** (38.95)	0.000000592*** (38.56)		
chgbasis	0.456*** (49.33)	0.456*** (49.33)	0.457*** (49.35)	0.457*** (49.33)	0.457*** (49.30)	0.456*** (49.20)	0.456*** (49.20)	0.455*** (48.79)	0.456*** (48.79)
cumcapet~1	-0.00489*** (-38.37)	-0.00489*** (-38.37)	-0.00511*** (-40.48)	-0.00488*** (-39.10)	-0.00542*** (-47.98)	-0.00554*** (-49.90)	-0.00578*** (-55.14)	-0.00551*** (-52.30)	-0.00591*** (-70.59)
exports	-0.0000142*** (-35.76)	-0.0000142*** (-35.81)	-0.0000143*** (-35.98)	-0.0000144*** (-36.18)	-0.0000138*** (-35.09)	-0.0000139*** (-35.26)	-0.0000142*** (-36.37)	-0.0000147*** (-37.51)	-0.0000150*** (-38.22)
janapril	4.232*** (11.96)	4.231*** (11.96)	4.261*** (12.03)						
mayaug	27.03*** (66.87)	27.03*** (66.91)	27.07*** (66.96)	23.36*** (89.34)	23.16*** (88.79)	23.26*** (89.37)	23.30*** (89.51)	23.36*** (89.10)	22.98*** (72.86)
septnov	3.992*** (9.50)	3.993*** (9.50)	3.656*** (8.71)	0.583 (1.75)	0.575 (1.72)	0.683* (2.05)	0.297 (0.91)	0.569 (1.73)	0.0987 (0.27)
hurricane	0.422 (0.48)								
econcrisis	-12.70*** (-11.97)	-12.53*** (-12.56)							
diesel	-11.22*** (-32.74)	-11.21*** (-32.78)	-11.50*** (-33.69)	-10.65*** (-31.87)	-11.54*** (-35.79)	-11.80*** (-36.98)	-13.12*** (-53.19)	-12.89*** (-51.90)	-12.74*** (-51.56)
gulf	-0.167*** (-10.15)	-0.167*** (-10.17)	-0.155*** (-9.45)	-0.164*** (-10.01)					
illriver	-0.0723*** (-67.47)	-0.0723*** (-67.49)	-0.0732*** (-68.44)	-0.0766*** (-74.15)	-0.0740*** (-73.96)	-0.0721*** (-76.55)	-0.0709*** (-76.76)	-0.0719*** (-77.42)	-0.0719*** (-77.20)
pnw	0.184*** (7.30)	0.184*** (7.32)	0.170*** (6.76)	0.171*** (6.80)	-0.0636*** (-6.92)	-0.0594*** (-6.49)			
secunit	0.00413*** (7.08)	0.00417*** (7.24)	0.00474*** (8.24)	0.00485*** (8.43)	0.00312*** (5.69)				
matunit	0.0439*** (61.20)	0.0439*** (61.23)	0.0432*** (60.40)	0.0424*** (59.51)	0.0427*** (59.88)	0.0427*** (59.88)	0.0444*** (67.04)	0.0443*** (66.47)	0.0412*** (98.90)
matshuttle	-0.00675*** (-9.25)	-0.00676*** (-9.26)	-0.00513*** (-7.14)	-0.00572*** (-7.97)	-0.00425*** (-6.05)	-0.00384*** (-5.50)	-0.00360*** (-5.15)	-0.00434*** (-6.17)	
disrup2	-0.499 (-1.74)	-0.498 (-1.74)	-0.503 (-1.76)	-0.775** (-2.71)	-0.950*** (-3.33)	-0.958*** (-3.36)	-1.163*** (-4.10)	-1.038*** (-3.63)	-0.789* (-2.35)
disrup1									-0.703* (-1.97)
_cons	-40.51*** (-30.73)	-40.47*** (-30.76)	-42.09*** (-32.11)	-36.01*** (-29.75)	-38.96*** (-33.18)	-39.79*** (-34.14)	-42.46*** (-38.93)	-29.39*** (-28.14)	-33.67*** (-44.56)
N	99766	99766	99766	99766	99766	99766	99766	99766	99766
R-sq	0.408	0.408	0.407	0.406	0.405	0.405	0.405	0.396	0.396

IN SOUTH CENTRA\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.0000130*** (8.62)	0.0000130*** (8.66)	0.0000114*** (7.82)	0.0000114*** (7.70)	0.0000116*** (7.90)	0.0000100*** (7.20)	0.0000114*** (8.29)		
chgbasis	0.502*** (7.16)	0.501*** (7.16)	0.514*** (7.29)	0.537*** (7.53)	0.544*** (7.63)	0.550*** (7.69)	0.557*** (7.70)	0.515*** (6.86)	0.513*** (6.83)
cumcapet~1	-0.00365** (-3.25)	-0.00366** (-3.27)	-0.00467*** (-4.24)	-0.00441*** (-3.96)	-0.00428*** (-3.85)	-0.00279** (-2.75)	-0.00182 (-1.82)	-0.00224* (-2.15)	-0.00380*** (-5.73)
exports	-0.0000117*** (-3.96)	-0.0000117*** (-3.98)	-0.0000125*** (-4.22)	-0.0000161*** (-5.57)	-0.0000163*** (-5.62)	-0.0000167*** (-5.77)	-0.0000139*** (-4.86)	-0.0000159*** (-5.37)	-0.0000162*** (-5.40)
janapril	13.68*** (4.84)	13.65*** (4.84)	12.96*** (4.56)						
mayaug	16.30*** (5.49)	16.27*** (5.49)	16.86*** (5.64)	6.326** (3.30)	6.516*** (3.40)	6.087** (3.17)	4.267* (2.25)	7.438*** (3.84)	9.886*** (4.44)
septnov	-3.707 (-1.22)	-3.714 (-1.22)	-4.018 (-1.31)	-13.10*** (-5.56)	-12.69*** (-5.41)	-13.03*** (-5.53)	-12.63*** (-5.31)	-11.91*** (-4.81)	-9.403*** (-3.50)
hurricane	-1.135 (-0.27)								
econcrisis	-25.54*** (-3.71)	-26.13*** (-4.00)							
diesel	13.36*** (3.84)	13.29*** (3.83)	8.605** (2.61)	8.375* (2.51)	8.697** (2.61)	9.438** (2.83)	17.76*** (6.38)	6.822** (2.67)	5.331* (2.26)
gulf	-0.205 (-1.49)	-0.202 (-1.48)	-0.330* (-2.45)	-0.232 (-1.72)					
illriver	-0.0452*** (-6.09)	-0.0451*** (-6.09)	-0.0494*** (-6.67)	-0.0530*** (-7.12)	-0.0505*** (-6.91)	-0.0635*** (-10.38)	-0.0645*** (-10.43)	-0.0667*** (-10.38)	-0.0652*** (-10.26)
pnw	0.494** (2.77)	0.493** (2.76)	0.679*** (3.90)	0.589*** (3.37)	0.308*** (4.85)	0.278*** (4.40)			
secunit	-0.0164** (-3.26)	-0.0168*** (-3.46)	-0.0134** (-2.78)	-0.0139** (-2.84)	-0.0154** (-3.20)				
matunit	0.0329*** (6.49)	0.0329*** (6.51)	0.0331*** (6.47)	0.0282*** (5.57)	0.0296*** (5.92)	0.0328*** (6.65)	0.0215*** (5.06)	0.0306*** (7.14)	0.0242*** (6.63)
matshuttle	-0.0148* (-2.39)	-0.0147* (-2.38)	-0.00751 (-1.26)	-0.00404 (-0.68)	-0.00674 (-1.16)	-0.0136* (-2.51)	-0.0130* (-2.38)	-0.0118* (-2.08)	
disrup2	1.409 (0.63)	1.410 (0.63)	0.683 (0.30)	-0.862 (-0.38)	-0.231 (-0.10)	0.280 (0.13)	0.149 (0.07)	-2.043 (-0.88)	-5.087 (-1.84)
disrup1									4.228 (1.45)
_cons	-84.30*** (-7.74)	-84.55*** (-7.79)	-84.48*** (-7.71)	-71.90*** (-6.70)	-73.15*** (-6.83)	-57.56*** (-6.00)	-51.93*** (-5.40)	-11.22 (-1.30)	-25.33*** (-4.59)
N	840	840	840	840	840	840	840	840	840
R-sq	0.608	0.608	0.601	0.590	0.589	0.584	0.574	0.539	0.537

IN SOUTHWEST\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000681*** (-33.38)	-0.000000681*** (-33.39)	-0.000000713*** (-34.93)	-0.000000713*** (-34.95)	-0.000000733*** (-35.86)	-0.000000733*** (-35.15)	-0.000000716*** (-34.86)	-0.000000704***	
chgbasis	0.466*** (35.19)	0.466*** (35.19)	0.470*** (35.42)	0.471*** (35.43)	0.472*** (35.46)	0.471*** (35.36)	0.471*** (35.32)	0.471*** (35.19)	0.471*** (35.18)
cumcapet~1	-0.00882*** (-52.83)	-0.00882*** (-52.83)	-0.00939*** (-56.87)	-0.00931*** (-56.91)	-0.0111*** (-76.15)	-0.0113*** (-78.66)	-0.0111*** (-82.66)	-0.0110*** (-81.59)	-0.0103*** (-93.56)
exports	-0.00000741*** (-14.28)	-0.00000741*** (-14.29)	-0.00000772*** (-14.86)	-0.00000772*** (-14.87)	-0.00000606*** (-11.74)	-0.00000619*** (-11.99)	-0.00000591*** (-11.53)	-0.00000452*** (-8.81)	-0.00000399*** (-7.81)
janapril	1.596*** (3.40)	1.597*** (3.40)	1.674*** (3.56)						
mayaug	15.44*** (28.92)	15.45*** (28.94)	15.55*** (29.06)	14.10*** (40.54)	13.40*** (38.57)	13.65*** (39.40)	13.67*** (39.47)	13.56*** (38.92)	14.46*** (34.65)
septnov	-2.092*** (-3.76)	-2.088*** (-3.75)	-2.958*** (-5.32)	-4.151*** (-9.36)	-4.162*** (-9.36)	-3.930*** (-8.85)	-3.524*** (-8.11)	-3.672*** (-8.40)	-2.682*** (-5.58)
hurricane	0.825 (0.67)								
econcrisis	-26.33*** (-20.07)	-25.97*** (-21.66)							
diesel	-17.79*** (-39.07)	-17.79*** (-39.07)	-18.57*** (-40.82)	-18.21*** (-41.03)	-21.22*** (-49.72)	-21.80*** (-51.60)	-20.50*** (-66.24)	-20.11*** (-64.66)	-20.61*** (-67.41)
gulf	-0.530*** (-25.28)	-0.530*** (-25.33)	-0.497*** (-23.77)	-0.501*** (-23.95)					
illriver	-0.0968*** (-69.75)	-0.0968*** (-69.78)	-0.0987*** (-71.16)	-0.100*** (-74.82)	-0.0925*** (-71.00)	-0.0886*** (-72.10)	-0.0896*** (-74.19)	-0.0894*** (-73.65)	-0.0899*** (-74.00)
pnw	0.786*** (24.64)	0.787*** (24.70)	0.753*** (23.61)	0.752*** (23.57)	0.0432*** (3.62)	0.0535*** (4.49)			
secunit	0.0109*** (13.96)	0.0109*** (14.25)	0.0122*** (15.90)	0.0122*** (15.95)	0.00663*** (9.06)				
matunit	0.0557*** (56.55)	0.0557*** (56.56)	0.0539*** (54.79)	0.0535*** (54.71)	0.0538*** (54.88)	0.0540*** (54.99)	0.0523*** (57.53)	0.0565*** (62.30)	0.0633*** (120.92)
matshuttle	0.00211* (2.12)	0.00209* (2.09)	0.00625*** (6.36)	0.00608*** (6.19)	0.0115*** (11.99)	0.0123*** (12.87)	0.0121*** (12.65)	0.00892*** (9.36)	
disrup2	2.200*** (5.76)	2.200*** (5.76)	2.142*** (5.59)	2.017*** (5.29)	1.232** (3.24)	1.253** (3.29)	1.463*** (3.87)	1.481*** (3.89)	0.875* (1.96)
disrup1									1.600*** (3.43)
_cons	-33.14*** (-19.06)	-33.09*** (-19.05)	-36.94*** (-21.33)	-34.62*** (-21.58)	-43.42*** (-27.73)	-45.45*** (-29.32)	-43.20*** (-29.45)	-54.73*** (-38.09)	-45.74*** (-44.57)
N	109582	109582	109582	109582	109582	109582	109582	109582	109582
R-sq	0.312	0.312	0.309	0.309	0.306	0.305	0.305	0.297	0.297

IN WEST CENTRAL\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000602*** (14.79)	0.000000603*** (14.81)	0.000000594*** (14.57)	0.000000592*** (14.51)	0.000000611*** (14.97)	0.000000639*** (15.70)	0.000000624*** (15.33)		
chgbasis	0.442*** (21.87)	0.442*** (21.86)	0.444*** (21.93)	0.444*** (21.92)	0.444*** (21.88)	0.443*** (21.77)	0.443*** (21.77)	0.442*** (21.66)	0.442*** (21.60)
cumcapet~1	-0.00216*** (-8.15)	-0.00214*** (-8.11)	-0.00258*** (-9.87)	-0.00245*** (-9.45)	-0.00389*** (-16.73)	-0.00420*** (-18.35)	-0.00491*** (-22.84)	-0.00461*** (-21.44)	-0.00572*** (-32.12)
exports	-0.0000182*** (-21.59)	-0.0000182*** (-21.64)	-0.0000184*** (-21.81)	-0.0000184*** (-21.86)	-0.0000168*** (-20.13)	-0.0000171*** (-20.49)	-0.0000180*** (-21.72)	-0.0000186*** (-22.40)	-0.0000199*** (-24.12)
janapril	2.893*** (3.74)	2.894*** (3.74)	2.951*** (3.81)						
mayaug	22.28*** (25.47)	22.30*** (25.51)	22.38*** (25.55)	19.84*** (34.89)	19.26*** (33.90)	19.54*** (34.45)	19.63*** (34.56)	19.81*** (34.77)	20.03*** (29.22)
septnov	3.025*** (3.33)	3.035*** (3.34)	2.333* (2.57)	0.254 (0.35)	0.260 (0.36)	0.708 (0.98)	-0.524 (-0.73)	-0.314 (-0.44)	-0.378 (-0.48)
hurricane	2.246 (1.22)								
econcrisis	-22.33*** (-10.45)	-21.37*** (-10.74)							
diesel	-8.400*** (-11.43)	-8.348*** (-11.38)	-8.924*** (-12.18)	-8.358*** (-11.64)	-10.84*** (-15.69)	-11.55*** (-16.85)	-15.48*** (-29.59)	-15.83*** (-30.18)	-14.99*** (-28.92)
gulf	-0.454*** (-12.93)	-0.457*** (-13.01)	-0.430*** (-12.26)	-0.435*** (-12.39)					
illriver	-0.0919*** (-40.12)	-0.0919*** (-40.15)	-0.0935*** (-40.85)	-0.0958*** (-43.40)	-0.0888*** (-41.52)	-0.0837*** (-41.12)	-0.0801*** (-40.11)	-0.0796*** (-39.77)	-0.0804*** (-40.07)
pnw	0.466*** (8.65)	0.469*** (8.71)	0.438*** (8.12)	0.437*** (8.10)	-0.186*** (-9.53)	-0.173*** (-8.88)			
secunit	0.0126*** (10.02)	0.0128*** (10.36)	0.0139*** (11.22)	0.0138*** (11.21)	0.00901*** (7.68)				
matunit	0.0507*** (32.39)	0.0507*** (32.37)	0.0493*** (31.52)	0.0487*** (31.29)	0.0494*** (31.69)	0.0495*** (31.74)	0.0545*** (37.42)	0.0531*** (36.41)	0.0422*** (48.94)
matshuttle	-0.0224*** (-14.49)	-0.0224*** (-14.52)	-0.0192*** (-12.66)	-0.0195*** (-12.85)	-0.0156*** (-10.46)	-0.0145*** (-9.81)	-0.0138*** (-9.32)	-0.0137*** (-9.25)	
disrup2	1.345* (2.15)	1.346* (2.16)	1.291* (2.06)	1.136 (1.82)	0.599 (0.96)	0.696 (1.11)	-0.0404 (-0.07)	-0.0167 (-0.03)	-0.437 (-0.60)
disrup1									0.549 (0.71)
_cons	-3.644 (-1.33)	-3.476 (-1.27)	-6.692* (-2.45)	-2.686 (-1.07)	-10.67*** (-4.38)	-12.96*** (-5.35)	-20.77*** (-9.20)	-9.696*** (-4.52)	-23.38*** (-14.55)
N	32642	32642	32642	32642	32642	32642	32642	32642	32642
R-sq	0.337	0.337	0.335	0.334	0.331	0.330	0.328	0.324	0.322

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.0000713*** (3.52)	0.0000678*** (3.35)	0.0000707*** (3.50)	0.0000683*** (3.42)	0.000109*** (5.39)	0.0000985*** (4.90)	0.0000462* (2.30)		
chgbasis	0.356*** (5.65)	0.357*** (5.65)	0.359*** (5.68)	0.359*** (5.68)	0.390*** (6.02)	0.391*** (6.02)	0.397*** (5.96)	0.399*** (6.00)	0.419*** (6.00)
cumcapet~1	0.00894*** (8.03)	0.00884*** (7.94)	0.00907*** (8.20)	0.00920*** (8.39)	0.00768*** (6.87)	0.00853*** (7.74)	0.000964 (1.06)	0.000524 (0.59)	0.00454*** (5.01)
exports	0.0000169*** (5.41)	0.0000174*** (5.58)	0.0000172*** (5.52)	0.0000171*** (5.50)	0.0000293*** (9.69)	0.0000279*** (9.25)	0.0000166*** (5.69)	0.0000169*** (5.80)	0.0000227*** (7.44)
janapril	2.411 (0.97)	2.093 (0.85)	2.088 (0.84)						
mayaug	5.527* (2.05)	4.957 (1.85)	4.735 (1.77)	2.918 (1.83)	2.583 (1.58)	2.344 (1.43)	6.476*** (3.94)	6.212*** (3.79)	0.860 (0.43)
septnov	-4.682 (-1.74)	-4.738 (-1.76)	-4.409 (-1.65)	-5.909** (-2.95)	-5.664** (-2.75)	-4.343* (-2.13)	-7.755*** (-3.75)	-7.667*** (-3.71)	-10.22*** (-4.31)
hurricane	-8.672* (-2.35)								
econcrisis	17.12* (2.18)	13.85 (1.79)							
diesel	-47.80*** (-18.02)	-47.70*** (-17.97)	-47.36*** (-17.88)	-46.80*** (-18.25)	-55.05*** (-21.69)	-52.90*** (-21.25)	-65.34*** (-28.39)	-62.22*** (-33.40)	-60.77*** (-30.69)
gulf	-1.192*** (-12.25)	-1.172*** (-12.08)	-1.182*** (-12.19)	-1.178*** (-12.17)					
illriver	-0.0155* (-1.98)	-0.0150 (-1.92)	-0.0145 (-1.85)	-0.0145 (-1.85)	0.0152* (1.99)	0.0302*** (4.50)	0.0389*** (5.70)	0.0397*** (5.82)	0.0642*** (9.18)
pnw	0.968*** (6.66)	0.943*** (6.50)	0.944*** (6.50)	0.932*** (6.45)	-0.673*** (-11.11)	-0.701*** (-11.63)			
secunit	0.0349*** (8.53)	0.0327*** (8.20)	0.0321*** (8.08)	0.0313*** (8.11)	0.0152*** (4.07)				
matunit	-0.0905*** (-12.78)	-0.0905*** (-12.77)	-0.0879*** (-12.67)	-0.0889*** (-13.02)	-0.104*** (-15.16)	-0.110*** (-16.37)	-0.0954*** (-14.07)	-0.0987*** (-14.88)	-0.0218*** (-4.26)
matshuttle	0.0589*** (9.86)	0.0587*** (9.82)	0.0557*** (9.70)	0.0552*** (9.66)	0.0764*** (13.67)	0.0720*** (13.09)	0.0910*** (16.91)	0.0890*** (16.75)	
disrup2	-5.677** (-2.91)	-5.437** (-2.79)	-5.374** (-2.76)	-5.150** (-2.67)	-5.838** (-2.95)	-4.545* (-2.32)	-9.008*** (-4.57)	-8.047*** (-4.18)	-8.862*** (-3.88)
disrup1									0.183 (0.08)
_cons	86.31*** (6.63)	87.24*** (6.70)	88.50*** (6.80)	93.04*** (7.86)	53.29*** (4.56)	72.60*** (6.78)	29.98** (2.91)	46.10*** (6.09)	112.6*** (16.64)
N	2773	2773	2773	2773	2773	2773	2773	2773	2773
R-sq	0.585	0.584	0.584	0.584	0.561	0.559	0.537	0.536	0.489

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000458*** (7.83)	0.000000458*** (7.84)	0.000000466*** (7.96)	0.000000467*** (7.97)	0.000000497*** (8.47)	0.000000530*** (9.08)	0.000000489*** (8.38)		
chgbasis	0.470*** (26.08)	0.470*** (26.09)	0.472*** (26.13)	0.471*** (26.12)	0.473*** (26.16)	0.471*** (26.04)	0.475*** (26.21)	0.474*** (26.16)	0.473*** (26.06)
cumcapet~1	-0.0101*** (-39.50)	-0.0101*** (-39.52)	-0.0107*** (-42.34)	-0.0106*** (-42.44)	-0.0124*** (-56.53)	-0.0126*** (-58.21)	-0.0136*** (-68.06)	-0.0135*** (-67.55)	-0.0116*** (-71.16)
exports	-0.00000478*** (-5.85)	-0.00000473*** (-5.80)	-0.00000495*** (-6.05)	-0.00000493*** (-6.03)	-0.00000312*** (-3.86)	-0.00000324*** (-4.01)	-0.00000403*** (-4.99)	-0.00000436*** (-5.41)	-0.00000253*** (-3.16)
janapril	1.602* (2.24)	1.609* (2.25)	1.701* (2.38)						
mayaug	11.96*** (14.82)	11.90*** (14.75)	11.97*** (14.81)	10.51*** (20.01)	9.790*** (18.70)	9.996*** (19.13)	9.990*** (19.09)	10.00*** (19.10)	11.08*** (17.44)
septnov	-2.979*** (-3.53)	-2.992*** (-3.55)	-3.978*** (-4.72)	-5.169*** (-7.63)	-5.358*** (-7.90)	-4.952*** (-7.34)	-6.509*** (-9.79)	-6.320*** (-9.50)	-4.797*** (-6.51)
hurricane	-6.418** (-3.27)								
econcrisis	-22.27*** (-10.97)	-25.32*** (-14.03)							
diesel	-17.64*** (-24.99)	-17.72*** (-25.11)	-18.35*** (-26.01)	-17.98*** (-26.14)	-20.30*** (-30.38)	-20.73*** (-31.22)	-26.80*** (-56.11)	-27.04*** (-56.70)	-28.33*** (-60.06)
gulf	-0.540*** (-15.17)	-0.538*** (-15.11)	-0.485*** (-13.68)	-0.489*** (-13.78)					
illriver	-0.109*** (-50.23)	-0.109*** (-50.17)	-0.110*** (-50.89)	-0.112*** (-53.66)	-0.104*** (-51.78)	-0.101*** (-52.14)	-0.0953*** (-50.40)	-0.0961*** (-50.89)	-0.0960*** (-50.66)
pnw	0.557*** (9.72)	0.555*** (9.68)	0.478*** (8.36)	0.476*** (8.34)	-0.263*** (-13.47)	-0.256*** (-13.13)			
secunit	0.0116*** (9.62)	0.0112*** (9.33)	0.0122*** (10.19)	0.0122*** (10.20)	0.00659*** (5.84)				
matunit	0.0491*** (33.19)	0.0492*** (33.23)	0.0472*** (31.96)	0.0468*** (31.87)	0.0468*** (31.76)	0.0467*** (31.73)	0.0545*** (40.28)	0.0543*** (40.15)	0.0717*** (87.40)
matshuttle	0.0114*** (7.79)	0.0115*** (7.83)	0.0157*** (10.93)	0.0155*** (10.79)	0.0206*** (14.91)	0.0214*** (15.53)	0.0225*** (16.35)	0.0224*** (16.24)	
disrup2	2.970*** (5.14)	2.965*** (5.13)	2.888*** (4.99)	2.809*** (4.86)	2.294*** (3.97)	2.355*** (4.07)	1.288* (2.25)	1.303* (2.27)	1.067 (1.59)
disrup1									1.618* (2.26)
_cons	-41.33*** (-15.47)	-41.62*** (-15.59)	-45.78*** (-17.23)	-43.40*** (-17.63)	-51.93*** (-21.76)	-53.60*** (-22.62)	-65.99*** (-30.32)	-60.18*** (-29.15)	-38.41*** (-24.58)
N	57666	57666	57666	57666	57666	57666	57666	57666	57666
R-sq	0.290	0.289	0.287	0.287	0.285	0.284	0.282	0.281	0.278

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000572*** (-6.77)	-0.000000571*** (-6.76)	-0.000000554*** (-6.54)	-0.000000554*** (-6.54)	-0.000000503*** (-5.91)	-0.000000503*** (-5.73)	-0.000000488*** (-5.74)	-0.000000489***	
chgbasis	0.463*** (17.46)	0.463*** (17.46)	0.472*** (17.76)	0.472*** (17.76)	0.478*** (17.87)	0.477*** (17.85)	0.477*** (17.83)	0.477*** (17.83)	0.473*** (17.45)
cumcapet~1	-0.0144*** (-40.19)	-0.0144*** (-40.16)	-0.0151*** (-42.54)	-0.0151*** (-42.85)	-0.0180*** (-57.54)	-0.0183*** (-59.01)	-0.0181*** (-62.93)	-0.0184*** (-64.74)	-0.0139*** (-59.66)
exports	0.000000273 (0.25)	0.000000252 (0.23)	-0.000000103 (-0.10)	-0.000000103 (-0.10)	0.000000261* (2.43)	0.000000227* (2.11)	0.000000243* (2.28)	0.000000240* (2.25)	0.000000612*** (5.71)
janapril	0.0643 (0.07)	0.0697 (0.07)	0.127 (0.13)						
mayaug	-0.244 (-0.22)	-0.218 (-0.20)	-0.0969 (-0.09)	-0.207 (-0.29)	-1.126 (-1.59)	-0.795 (-1.12)	-0.787 (-1.11)	-0.876 (-1.24)	0.0327 (0.04)
septnov	-3.609** (-3.16)	-3.595** (-3.14)	-4.698*** (-4.11)	-4.788*** (-5.22)	-4.804*** (-5.21)	-4.484*** (-4.87)	-4.219*** (-4.68)	-4.349*** (-4.82)	-2.180* (-2.17)
hurricane	3.071 (1.28)								
econcrisis	-35.26*** (-12.53)	-33.81*** (-13.11)							
diesel	-17.32*** (-18.43)	-17.27*** (-18.39)	-18.13*** (-19.29)	-18.10*** (-19.75)	-23.04*** (-26.34)	-23.81*** (-27.53)	-22.95*** (-36.81)	-23.01*** (-36.89)	-26.06*** (-41.93)
gulf	-0.781*** (-18.03)	-0.784*** (-18.12)	-0.741*** (-17.14)	-0.742*** (-17.16)					
illriver	-0.116*** (-40.35)	-0.116*** (-40.38)	-0.118*** (-41.07)	-0.119*** (-42.70)	-0.107*** (-39.47)	-0.101*** (-39.73)	-0.102*** (-40.59)	-0.102*** (-40.53)	-0.102*** (-39.98)
pnw	1.112*** (16.87)	1.116*** (16.95)	1.070*** (16.23)	1.070*** (16.23)	0.0203 (0.82)	0.0354 (1.44)			
secunit	0.0154*** (9.45)	0.0158*** (9.86)	0.0172*** (10.71)	0.0172*** (10.72)	0.00899*** (5.83)				
matunit	0.0356*** (17.39)	0.0356*** (17.39)	0.0333*** (16.28)	0.0333*** (16.36)	0.0341*** (16.70)	0.0342*** (16.72)	0.0330*** (17.55)	0.0340*** (18.11)	0.0751*** (69.02)
matshuttle	0.0382*** (18.37)	0.0381*** (18.34)	0.0433*** (21.14)	0.0432*** (21.15)	0.0520*** (26.13)	0.0530*** (26.73)	0.0529*** (26.69)	0.0530*** (26.76)	
disrup2	7.365*** (9.41)	7.365*** (9.41)	7.307*** (9.30)	7.298*** (9.33)	6.077*** (7.76)	6.088*** (7.77)	6.219*** (7.99)	6.123*** (7.86)	6.225*** (6.76)
disrup1									1.915* (1.97)
_cons	-77.35*** (-21.62)	-77.15*** (-21.58)	-82.60*** (-23.19)	-82.43*** (-24.82)	-97.87*** (-30.46)	-99.92*** (-31.26)	-98.22*** (-33.06)	-101.4*** (-34.68)	-47.22*** (-22.11)
N	28537	28537	28537	28537	28537	28537	28537	28537	28537
R-sq	0.323	0.323	0.319	0.319	0.312	0.311	0.311	0.310	0.293



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000294*** (48.61)	0.000000294*** (48.61)	0.000000295*** (48.70)	0.000000294*** (48.70)	0.000000299*** (49.57)	0.000000300*** (49.72)	0.000000300*** (49.59)		
chgbasis	0.473*** (55.09)	0.473*** (55.03)	0.472*** (54.97)	0.472*** (54.97)	0.473*** (55.01)	0.472*** (54.87)	0.471*** (54.78)	0.471*** (54.30)	0.473*** (54.30)
cumcapet~1	-0.00727*** (-65.88)	-0.00725*** (-65.76)	-0.00718*** (-65.77)	-0.00719*** (-66.43)	-0.00651*** (-66.45)	-0.00664*** (-68.50)	-0.00602*** (-65.62)	-0.00611*** (-66.03)	-0.00821*** (-108.51)
exports	-0.0000128*** (-34.52)	-0.0000128*** (-34.60)	-0.0000128*** (-34.51)	-0.0000128*** (-34.51)	-0.0000136*** (-36.96)	-0.0000137*** (-37.41)	-0.0000128*** (-35.14)	-0.0000133*** (-36.34)	-0.0000152*** (-41.61)
janapril	-0.282 (-0.85)	-0.275 (-0.83)	-0.284 (-0.85)						
mayaug	14.40*** (38.22)	14.43*** (38.31)	14.42*** (38.26)	14.66*** (60.03)	14.90*** (61.10)	15.06*** (61.87)	15.03*** (61.66)	14.96*** (60.88)	13.85*** (46.74)
septnov	1.967*** (4.99)	1.987*** (5.04)	2.107*** (5.36)	2.311*** (7.38)	2.236*** (7.14)	2.374*** (7.59)	3.595*** (11.71)	3.434*** (11.10)	1.842*** (5.36)
hurricane	3.818*** (4.48)								
econcrisis	2.502* (2.57)	4.150*** (4.61)							
diesel	-22.13*** (-70.07)	-22.08*** (-69.94)	-21.99*** (-69.79)	-22.04*** (-71.36)	-20.81*** (-69.92)	-21.29*** (-72.54)	-17.55*** (-78.68)	-17.99*** (-80.08)	-16.55*** (-74.36)
gulf	0.223*** (15.20)	0.219*** (14.99)	0.215*** (14.75)	0.216*** (14.78)					
illriver	-0.0772*** (-77.87)	-0.0773*** (-77.95)	-0.0770*** (-77.81)	-0.0768*** (-80.15)	-0.0801*** (-86.07)	-0.0770*** (-88.14)	-0.0801*** (-93.19)	-0.0803*** (-92.69)	-0.0805*** (-92.37)
pnw	-0.162*** (-7.25)	-0.157*** (-7.01)	-0.153*** (-6.84)	-0.153*** (-6.83)	0.154*** (18.42)	0.163*** (19.59)			
secunit	0.00254*** (4.64)	0.00297*** (5.51)	0.00277*** (5.14)	0.00276*** (5.13)	0.00506*** (9.80)				
matunit	0.0662*** (97.38)	0.0662*** (97.35)	0.0665*** (98.12)	0.0665*** (98.55)	0.0663*** (98.23)	0.0665*** (98.54)	0.0616*** (98.18)	0.0619*** (97.88)	0.0420*** (114.15)
matshuttle	-0.0234*** (-34.68)	-0.0235*** (-34.83)	-0.0241*** (-36.29)	-0.0241*** (-36.29)	-0.0261*** (-40.13)	-0.0257*** (-39.61)	-0.0262*** (-40.38)	-0.0255*** (-38.91)	
disrup2	-2.037*** (-7.56)	-2.038*** (-7.57)	-2.036*** (-7.56)	-2.019*** (-7.52)	-1.761*** (-6.57)	-1.773*** (-6.61)	-1.143*** (-4.29)	-1.317*** (-4.90)	-0.689* (-2.17)
disrup1									-2.031*** (-6.08)
_cons	-21.56*** (-18.72)	-21.36*** (-18.56)	-20.80*** (-18.18)	-21.18*** (-20.07)	-17.62*** (-17.13)	-18.54*** (-18.10)	-11.09*** (-11.65)	-4.008*** (-4.22)	-28.68*** (-40.84)
N	154209	154209	154209	154209	154209	154209	154209	154209	154209
R-sq	0.314	0.314	0.314	0.314	0.313	0.312	0.310	0.299	0.293

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000114*** (69.75)	0.00000114*** (69.74)	0.00000114*** (69.85)	0.00000113*** (69.35)	0.00000114*** (70.20)	0.00000113*** (69.36)	0.00000110*** (67.26)		
chgbasis	0.505*** (62.46)	0.505*** (62.46)	0.505*** (62.47)	0.504*** (62.40)	0.505*** (62.41)	0.506*** (62.54)	0.506*** (62.29)	0.506*** (61.58)	0.509*** (61.43)
cumcapet~1	-0.000916*** (-15.67)	-0.000917*** (-15.69)	-0.000951*** (-16.31)	-0.00102*** (-17.47)	-0.00110*** (-19.23)	-0.000965*** (-17.07)	-0.00129*** (-22.91)	-0.00107*** (-18.91)	-0.00240*** (-44.75)
exports	0.00000707*** (17.29)	0.00000708*** (17.31)	0.00000696*** (17.03)	0.00000673*** (16.47)	0.00000690*** (16.92)	0.00000686*** (16.80)	0.00000441*** (10.85)	0.00000279*** (6.80)	-0.00000440*** (-10.98)
janapril	-6.076*** (-15.89)	-6.076*** (-15.89)	-6.094*** (-15.93)						
mayaug	-3.038*** (-6.89)	-3.045*** (-6.91)	-3.054*** (-6.93)	2.373*** (8.47)	2.227*** (7.97)	1.956*** (7.01)	1.922*** (6.86)	1.808*** (6.38)	5.355*** (15.54)
septnov	-8.651*** (-18.86)	-8.655*** (-18.87)	-8.860*** (-19.34)	-4.281*** (-12.00)	-4.162*** (-11.68)	-4.384*** (-12.30)	-6.757*** (-19.10)	-6.770*** (-18.93)	-3.828*** (-9.56)
hurricane	-1.407 (-1.23)								
econcrisis	-9.170*** (-7.36)	-9.755*** (-8.48)							
diesel	-4.316*** (-12.38)	-4.331*** (-12.43)	-4.383*** (-12.58)	-5.320*** (-15.48)	-5.566*** (-16.29)	-4.451*** (-13.24)	-13.61*** (-51.93)	-12.54*** (-47.42)	-7.041*** (-27.69)
gulf	-0.127*** (-7.26)	-0.126*** (-7.21)	-0.122*** (-7.99)	-0.116*** (-6.60)					
illriver	-0.0536*** (-48.59)	-0.0536*** (-48.58)	-0.0544*** (-49.48)	-0.0498*** (-46.92)	-0.0488*** (-46.45)	-0.0552*** (-55.84)	-0.0501*** (-50.86)	-0.0536*** (-53.82)	-0.0566*** (-56.23)
pnw	-0.239*** (-8.42)	-0.241*** (-8.49)	-0.247*** (-8.73)	-0.243*** (-8.58)	-0.418*** (-40.95)	-0.438*** (-43.18)			
secunit	-0.0101*** (-15.89)	-0.0102*** (-16.28)	-0.00971*** (-15.57)	-0.0100*** (-16.09)	-0.0109*** (-17.77)				
matunit	0.0353*** (44.03)	0.0353*** (44.04)	0.0348*** (43.55)	0.0355*** (44.49)	0.0356*** (44.54)	0.0348*** (43.57)	0.0501*** (69.79)	0.0531*** (73.37)	0.00970*** (29.81)
matshuttle	-0.0376*** (-57.77)	-0.0376*** (-57.75)	-0.0369*** (-57.15)	-0.0367*** (-56.81)	-0.0369*** (-57.06)	-0.0370*** (-57.16)	-0.0421*** (-65.90)	-0.0430*** (-66.63)	
disrup2	0.654* (2.14)	0.654* (2.14)	0.683* (2.23)	1.326*** (4.37)	1.291*** (4.26)	1.388*** (4.57)	0.480 (1.58)	0.656* (2.13)	-4.036*** (-11.00)
disrup1									8.595*** (21.96)
_cons	29.29*** (27.95)	29.25*** (27.92)	29.02*** (27.71)	22.01*** (23.15)	22.50*** (23.73)	23.85*** (25.21)	11.87*** (13.06)	10.34*** (11.27)	-27.07*** (-34.67)
N	206635	206635	206635	206635	206635	206635	206635	206635	206635
R-sq	0.134	0.134	0.134	0.133	0.133	0.131	0.124	0.104	0.087

MN SOUTH CENTRA\_3

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000104*** (-17.86)	-0.00000104*** (-17.84)	-0.00000104*** (-17.87)	-0.00000104*** (-17.97)	-0.00000104*** (-17.96)	-0.00000104*** (-18.12)	-0.00000105*** (-18.85)	-0.00000108***	
chgbasis	0.460*** (18.13)	0.460*** (18.12)	0.460*** (18.11)	0.461*** (18.13)	0.461*** (18.10)	0.461*** (18.10)	0.461*** (18.10)	0.459*** (17.85)	0.460*** (17.87)
cumcapet~1	-0.00827*** (-22.48)	-0.00826*** (-22.46)	-0.00812*** (-22.26)	-0.00796*** (-22.09)	-0.00646*** (-19.82)	-0.00647*** (-19.98)	-0.00592*** (-19.19)	-0.00765*** (-25.69)	-0.00866*** (-36.36)
exports	-0.0000191*** (-17.55)	-0.0000191*** (-17.56)	-0.0000191*** (-17.51)	-0.0000190*** (-17.48)	-0.0000204*** (-18.84)	-0.0000204*** (-18.84)	-0.0000196*** (-18.28)	-0.0000211*** (-19.51)	-0.0000217*** (-20.06)
janapril	2.726** (2.82)	2.732** (2.82)	2.707** (2.80)						
mayaug	21.05*** (18.98)	21.07*** (19.00)	21.05*** (18.98)	18.74*** (25.37)	19.38*** (26.28)	19.40*** (26.36)	19.46*** (26.43)	19.01*** (25.59)	18.14*** (20.20)
septnov	7.607*** (6.58)	7.628*** (6.60)	7.846*** (6.80)	5.974*** (6.35)	6.002*** (6.37)	6.007*** (6.38)	7.124*** (7.74)	6.532*** (7.03)	5.298*** (5.16)
hurricane	4.667 (1.51)								
econcrisis	6.507* (2.07)	8.443** (2.94)							
diesel	-26.78*** (-27.50)	-26.75*** (-27.47)	-26.57*** (-27.33)	-25.95*** (-27.41)	-23.40*** (-25.67)	-23.44*** (-26.09)	-20.03*** (-30.58)	-21.50*** (-32.76)	-20.94*** (-32.28)
gulf	0.449*** (9.96)	0.446*** (9.90)	0.438*** (9.75)	0.433*** (9.64)					
illriver	-0.0782*** (-25.89)	-0.0783*** (-25.92)	-0.0777*** (-25.78)	-0.0798*** (-27.45)	-0.0863*** (-30.39)	-0.0860*** (-32.57)	-0.0880*** (-33.66)	-0.0911*** (-34.57)	-0.0903*** (-34.24)
pnw	-0.481*** (-7.01)	-0.476*** (-6.94)	-0.469*** (-6.84)	-0.473*** (-6.90)	0.140*** (5.48)	0.141*** (5.54)			
secunit	-0.00449** (-2.63)	-0.00409* (-2.43)	-0.00444** (-2.64)	-0.00425* (-2.52)	0.000443 (0.27)				
matunit	0.0653*** (30.93)	0.0653*** (30.96)	0.0658*** (31.24)	0.0652*** (31.11)	0.0644*** (30.67)	0.0644*** (30.70)	0.0595*** (31.27)	0.0621*** (32.43)	0.0534*** (48.21)
matshuttle	-0.00924*** (-4.35)	-0.00936*** (-4.41)	-0.0104*** (-4.97)	-0.0108*** (-5.18)	-0.0147*** (-7.18)	-0.0147*** (-7.17)	-0.0147*** (-7.16)	-0.0116*** (-5.62)	
disrup2	-2.507** (-3.09)	-2.507** (-3.09)	-2.500** (-3.08)	-2.685*** (-3.32)	-1.965* (-2.43)	-1.969* (-2.44)	-1.441 (-1.80)	-2.220** (-2.75)	-1.909* (-2.05)
disrup1									-1.345 (-1.37)
_cons	-11.31** (-2.75)	-11.18** (-2.71)	-10.00* (-2.44)	-5.990 (-1.56)	1.043 (0.28)	0.978 (0.26)	7.973* (2.24)	-26.32*** (-8.53)	-38.37*** (-17.74)
N	18880	18880	18880	18880	18880	18880	18880	18880	18880
R-sq	0.382	0.382	0.382	0.381	0.378	0.378	0.377	0.366	0.365

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000292*** (-24.24)	-0.000000291*** (-24.22)	-0.000000298*** (-24.77)	-0.000000298*** (-24.78)	-0.000000308*** (-25.59)	-0.000000312*** (-25.87)	-0.000000312*** (-27.06)	-0.000000326***	
chgbasis	0.451*** (43.73)	0.451*** (43.71)	0.449*** (43.51)	0.450*** (43.51)	0.450*** (43.51)	0.450*** (43.42)	0.449*** (43.30)	0.449*** (43.07)	0.450*** (43.07)
cumcapet~1	-0.00836*** (-55.23)	-0.00835*** (-55.20)	-0.00807*** (-53.89)	-0.00802*** (-54.17)	-0.00675*** (-50.70)	-0.00694*** (-52.69)	-0.00601*** (-48.58)	-0.00625*** (-50.43)	-0.00812*** (-82.72)
exports	-0.0000189*** (-40.74)	-0.0000189*** (-40.82)	-0.0000188*** (-40.53)	-0.0000188*** (-40.53)	-0.0000201*** (-43.70)	-0.0000202*** (-44.02)	-0.0000190*** (-41.63)	-0.0000195*** (-42.71)	-0.0000205*** (-45.03)
janapril	0.959* (2.25)	0.961* (2.25)	0.910* (2.13)						
mayaug	22.31*** (46.36)	22.33*** (46.41)	22.28*** (46.26)	21.48*** (70.19)	21.96*** (71.84)	22.17*** (72.69)	22.12*** (72.39)	22.10*** (72.05)	19.82*** (53.96)
septnov	8.065*** (16.09)	8.074*** (16.11)	8.462*** (16.90)	7.800*** (19.85)	7.856*** (19.95)	8.012*** (20.36)	9.600*** (24.84)	9.572*** (24.68)	7.019*** (16.44)
hurricane	1.879 (1.87)								
econcrisis	14.25*** (11.28)	15.06*** (12.68)							
diesel	-35.68*** (-88.35)	-35.64*** (-88.38)	-35.30*** (-87.67)	-35.12*** (-89.16)	-32.89*** (-87.11)	-33.47*** (-89.87)	-28.50*** (-101.52)	-28.64*** (-101.66)	-27.63*** (-99.15)
gulf	0.380*** (20.33)	0.378*** (20.25)	0.364*** (19.53)	0.362*** (19.44)					
illriver	-0.0917*** (-73.11)	-0.0917*** (-73.15)	-0.0907*** (-72.43)	-0.0914*** (-75.43)	-0.0971*** (-82.47)	-0.0932*** (-84.86)	-0.0968*** (-89.17)	-0.0973*** (-89.31)	-0.0966*** (-88.38)
pnw	-0.317*** (-11.26)	-0.314*** (-11.19)	-0.300*** (-10.69)	-0.300*** (-10.69)	0.205*** (19.25)	0.215*** (20.25)			
secunit	0.00254*** (3.72)	0.00277*** (4.14)	0.00212** (3.16)	0.00215** (3.21)	0.00590*** (9.19)				
matunit	0.0780*** (90.14)	0.0779*** (90.12)	0.0787*** (91.25)	0.0786*** (91.43)	0.0778*** (90.46)	0.0779*** (90.58)	0.0712*** (89.51)	0.0721*** (90.33)	0.0567*** (120.35)
matshuttle	-0.0149*** (-16.85)	-0.0149*** (-16.91)	-0.0169*** (-19.42)	-0.0170*** (-19.60)	-0.0205*** (-24.08)	-0.0198*** (-23.39)	-0.0206*** (-24.25)	-0.0206*** (-24.21)	
disrup2	-4.212*** (-12.24)	-4.210*** (-12.24)	-4.184*** (-12.15)	-4.255*** (-12.42)	-3.734*** (-10.91)	-3.751*** (-10.95)	-2.959*** (-8.68)	-3.355*** (-9.81)	-1.563*** (-3.89)
disrup1									-4.400*** (-10.56)
_cons	-25.21*** (-16.12)	-25.05*** (-16.04)	-22.74*** (-14.65)	-21.48*** (-14.97)	-14.21*** (-10.24)	-15.48*** (-11.20)	-5.331*** (-4.13)	-13.28*** (-10.53)	-33.76*** (-37.94)
N	96820	96820	96820	96820	96820	96820	96820	96820	96820
R-sq	0.426	0.425	0.425	0.425	0.422	0.422	0.419	0.415	0.412

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000109*** (9.36)	0.000000109*** (9.32)	0.000000109*** (9.31)	0.000000108*** (9.27)	0.000000111*** (9.45)	0.000000113*** (9.62)	0.000000113*** (9.62)	0.000000113***	0.000000113***
chgbasis	0.473*** (43.85)	0.473*** (43.81)	0.473*** (43.83)	0.472*** (43.79)	0.473*** (43.79)	0.471*** (43.67)	0.471*** (43.67)	0.471*** (43.64)	0.474*** (43.35)
cumcapet~1	-0.00263*** (-30.30)	-0.00263*** (-30.23)	-0.00264*** (-30.49)	-0.00268*** (-31.13)	-0.00253*** (-30.62)	-0.00261*** (-31.76)	-0.00261*** (-32.65)	-0.00261*** (-32.66)	-0.00423*** (-58.08)
exports	-0.0000182*** (-38.52)	-0.0000182*** (-38.59)	-0.0000182*** (-38.65)	-0.0000183*** (-38.77)	-0.0000186*** (-39.67)	-0.0000188*** (-40.22)	-0.0000188*** (-40.69)	-0.0000188*** (-40.98)	-0.0000190*** (-51.56)
janapril	-2.668*** (-6.27)	-2.664*** (-6.26)	-2.666*** (-6.26)						
mayaug	12.68*** (26.12)	12.72*** (26.18)	12.72*** (26.18)	15.03*** (47.78)	15.19*** (48.39)	15.41*** (49.22)	15.41*** (49.22)	15.40*** (49.17)	15.07*** (39.41)
septnov	4.280*** (8.41)	4.302*** (8.45)	4.261*** (8.39)	6.225*** (15.57)	6.122*** (15.32)	6.335*** (15.87)	6.346*** (16.17)	6.324*** (16.10)	5.680*** (12.87)
hurricane	3.815*** (3.65)								
econcrisis	-3.082* (-2.53)	-1.467 (-1.29)							
diesel	-16.48*** (-43.31)	-16.42*** (-43.19)	-16.44*** (-43.24)	-16.85*** (-44.99)	-16.46*** (-44.57)	-17.00*** (-46.54)	-16.97*** (-59.20)	-17.10*** (-59.69)	-13.61*** (-48.62)
gulf	0.111*** (6.29)	0.108*** (6.12)	0.108*** (6.15)	0.109*** (6.19)					
illriver	-0.0939*** (-75.51)	-0.0939*** (-75.57)	-0.0941*** (-76.05)	-0.0923*** (-76.70)	-0.0937*** (-79.24)	-0.0896*** (-80.92)	-0.0897*** (-82.08)	-0.0897*** (-82.05)	-0.0914*** (-82.64)
pnw	-0.177*** (-6.35)	-0.172*** (-6.19)	-0.172*** (-6.20)	-0.167*** (-6.01)	-0.00718 (-0.70)	0.00143 (0.14)			
secunit	0.00475*** (6.94)	0.00519*** (7.71)	0.00528*** (7.89)	0.00524*** (7.82)	0.00629*** (9.71)				
matunit	0.0627*** (71.82)	0.0627*** (71.78)	0.0626*** (71.96)	0.0629*** (72.53)	0.0629*** (72.52)	0.0631*** (72.69)	0.0631*** (78.34)	0.0627*** (77.96)	0.0299*** (75.77)
matshuttle	-0.0357*** (-46.58)	-0.0357*** (-46.67)	-0.0356*** (-47.02)	-0.0355*** (-46.88)	-0.0357*** (-47.30)	-0.0355*** (-47.02)	-0.0355*** (-47.14)	-0.0351*** (-46.63)	
disrup2	-1.348*** (-3.90)	-1.349*** (-3.90)	-1.345*** (-3.89)	-1.142*** (-3.32)	-1.043** (-3.04)	-1.036** (-3.01)	-1.031** (-3.01)	-1.096** (-3.20)	-1.084** (-2.67)
disrup1									-0.204 (-0.47)
_cons	20.72*** (16.45)	20.91*** (16.61)	20.83*** (16.57)	17.74*** (15.34)	18.00*** (15.57)	17.38*** (15.05)	17.42*** (15.65)	20.81*** (19.69)	-9.088*** (-10.54)
N	94071	94071	94071	94071	94071	94071	94071	94071	94071
R-sq	0.320	0.320	0.320	0.320	0.320	0.319	0.319	0.318	0.302

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	9.96e-08*** (9.36)	9.92e-08*** (9.32)	9.82e-08*** (9.22)	9.41e-08*** (8.84)	9.62e-08*** (9.04)	9.55e-08*** (8.99)	8.80e-08*** (8.28)		
chgbasis	0.497*** (71.68)	0.497*** (71.72)	0.497*** (71.72)	0.496*** (71.63)	0.496*** (71.61)	0.497*** (71.63)	0.496*** (71.58)	0.496*** (71.55)	0.499*** (71.39)
cumcapet~1	-0.00305*** (-43.92)	-0.00307*** (-44.13)	-0.00314*** (-45.42)	-0.00323*** (-47.01)	-0.00309*** (-47.88)	-0.00308*** (-48.09)	-0.00339*** (-55.41)	-0.00344*** (-56.45)	-0.00544*** (-102.74)
exports	-0.00000365*** (-12.39)	-0.00000359*** (-12.19)	-0.00000367*** (-12.48)	-0.00000371*** (-12.59)	-0.00000391*** (-13.36)	-0.00000389*** (-13.32)	-0.00000389*** (-15.82)	-0.00000458*** (-16.40)	-0.00000473*** (-29.45)
janapril	-3.550*** (-13.26)	-3.557*** (-13.28)	-3.558*** (-13.29)						
mayaug	4.378*** (14.38)	4.333*** (14.24)	4.342*** (14.26)	7.435*** (37.91)	7.523*** (38.46)	7.505*** (38.48)	7.541*** (38.65)	7.543*** (38.66)	8.763*** (36.93)
septnov	-3.555*** (-11.15)	-3.572*** (-11.20)	-3.759*** (-11.82)	-1.159*** (-4.62)	-1.192*** (-4.75)	-1.214*** (-4.85)	-1.932*** (-7.84)	-1.938*** (-7.86)	-1.340*** (-4.87)
hurricane	-3.945*** (-6.24)								
econcrisis	-5.024*** (-6.28)	-6.791*** (-9.07)							
diesel	-11.01*** (-45.19)	-11.09*** (-45.57)	-11.18*** (-45.94)	-11.78*** (-49.28)	-11.47*** (-49.13)	-11.43*** (-49.44)	-13.84*** (-77.46)	-13.88*** (-77.69)	-11.14*** (-63.46)
gulf	0.0585*** (5.10)	0.0625*** (5.46)	0.0661*** (5.77)	0.0690*** (6.02)					
illriver	-0.0689*** (-87.72)	-0.0689*** (-87.63)	-0.0694*** (-88.64)	-0.0669*** (-88.00)	-0.0679*** (-91.47)	-0.0682*** (-98.13)	-0.0664*** (-96.71)	-0.0666*** (-97.04)	-0.0682*** (-98.42)
pnw	-0.203*** (-11.30)	-0.208*** (-11.62)	-0.212*** (-11.85)	-0.207*** (-11.57)	-0.107*** (-16.25)	-0.107*** (-16.39)			
secunit	-0.000990* (-2.31)	-0.00149*** (-3.52)	-0.00112** (-2.68)	-0.00114** (-2.72)	-0.000480 (-1.18)				
matunit	0.0509*** (92.41)	0.0510*** (92.56)	0.0506*** (92.11)	0.0512*** (93.56)	0.0512*** (93.48)	0.0512*** (93.47)	0.0545*** (107.25)	0.0547*** (107.66)	0.0262*** (98.00)
matshuttle	-0.0332*** (-65.13)	-0.0331*** (-65.01)	-0.0324*** (-64.37)	-0.0322*** (-64.05)	-0.0325*** (-65.14)	-0.0326*** (-65.28)	-0.0328*** (-65.63)	-0.0326*** (-65.30)	
disrup2	1.918*** (8.84)	1.917*** (8.84)	1.924*** (8.87)	2.204*** (10.21)	2.270*** (10.52)	2.268*** (10.51)	1.905*** (8.87)	1.899*** (8.84)	0.209 (0.83)
disrup1									2.788*** (10.41)
_cons	15.36*** (18.62)	15.09*** (18.31)	14.54*** (17.69)	10.29*** (13.59)	10.84*** (14.41)	10.90*** (14.53)	7.142*** (9.99)	8.039*** (11.38)	-23.11*** (-42.28)
N	250045	250045	250045	250045	250045	250045	250045	250045	250045
R-sq	0.204	0.204	0.204	0.203	0.203	0.203	0.202	0.202	0.189

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000297*** (13.38)	0.00000298*** (13.41)	0.00000296*** (13.33)	0.00000297*** (13.44)	0.00000319*** (14.50)	0.00000307*** (13.91)	0.00000297*** (13.45)		
chgbasis	0.470*** (17.26)	0.470*** (17.26)	0.469*** (17.25)	0.469*** (17.24)	0.471*** (17.26)	0.472*** (17.23)	0.474*** (17.27)	0.474*** (17.21)	0.474*** (17.21)
cumcapet~1	-0.0117*** (-24.51)	-0.0118*** (-24.59)	-0.0117*** (-24.54)	-0.0118*** (-25.33)	-0.0133*** (-30.91)	-0.0139*** (-32.56)	-0.0150*** (-36.92)	-0.0141*** (-34.95)	-0.0145*** (-47.06)
exports	-0.00000981*** (-6.69)	-0.00000962*** (-6.59)	-0.00000960*** (-6.57)	-0.00000958*** (-6.56)	-0.00000958*** (-5.54)	-0.00000804*** (-5.54)	-0.00000807*** (-6.59)	-0.00000955*** (-5.18)	-0.00000750*** (-5.28)
janapril	-1.327 (-0.97)	-1.320 (-0.97)	-1.360 (-1.00)						
mayaug	13.96*** (8.88)	13.88*** (8.83)	13.85*** (8.81)	15.08*** (15.46)	14.38*** (14.77)	14.97*** (15.34)	15.44*** (15.82)	15.86*** (16.16)	15.34*** (13.18)
septnov	3.362* (2.09)	3.382* (2.11)	3.451* (2.15)	4.461*** (3.58)	4.152*** (3.33)	5.214*** (4.17)	3.414** (2.77)	4.825*** (3.91)	4.268** (3.15)
hurricane	-4.732 (-1.38)								
econcrisis	14.05* (2.04)	11.76 (1.76)							
diesel	-14.59*** (-11.03)	-14.78*** (-11.24)	-14.71*** (-11.19)	-15.00*** (-11.68)	-16.79*** (-13.24)	-19.31*** (-15.40)	-24.48*** (-22.77)	-24.96*** (-23.10)	-24.71*** (-23.08)
gulf	-0.561*** (-8.49)	-0.557*** (-8.43)	-0.560*** (-8.49)	-0.554*** (-8.43)					
illriver	-0.113*** (-26.06)	-0.113*** (-26.05)	-0.113*** (-26.00)	-0.112*** (-26.64)	-0.104*** (-25.37)	-0.0865*** (-22.69)	-0.0810*** (-21.57)	-0.0849*** (-22.55)	-0.0855*** (-22.82)
pnw	0.494*** (4.91)	0.491*** (4.89)	0.496*** (4.94)	0.492*** (4.90)	-0.300*** (-8.46)	-0.284*** (-7.99)			
secunit	0.0293*** (13.43)	0.0288*** (13.38)	0.0286*** (13.30)	0.0286*** (13.29)	0.0234*** (11.33)				
matunit	0.0743*** (26.40)	0.0747*** (26.65)	0.0749*** (26.76)	0.0751*** (26.86)	0.0763*** (27.26)	0.0775*** (27.60)	0.0839*** (31.10)	0.0788*** (29.34)	0.0753*** (45.68)
matshuttle	-0.0122*** (-4.22)	-0.0122*** (-4.23)	-0.0127*** (-4.45)	-0.0124*** (-4.36)	-0.00941*** (-3.34)	-0.00805** (-2.85)	-0.00641* (-2.27)	-0.00465 (-1.64)	
disrup2	1.401 (1.29)	1.394 (1.28)	1.379 (1.27)	1.539 (1.43)	1.052 (0.98)	0.971 (0.90)	0.124 (0.11)	0.592 (0.55)	1.181 (0.91)
disrup1									-1.119 (-0.83)
_cons	-48.45*** (-9.57)	-49.05*** (-9.73)	-48.33*** (-9.61)	-50.59*** (-11.29)	-59.27*** (-13.56)	-62.08*** (-14.17)	-75.12*** (-18.44)	-64.31*** (-16.01)	-68.78*** (-25.00)
N	16445	16445	16445	16445	16445	16445	16445	16445	16445
R-sq	0.287	0.287	0.287	0.287	0.284	0.278	0.275	0.267	0.267

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000250*** (-27.25)	-0.00000250*** (-27.23)	-0.00000252*** (-27.39)	-0.00000252*** (-27.39)	-0.00000252*** (-27.28)	-0.00000253*** (-27.38)	-0.00000253*** (-27.42)		
chgbasis	0.479*** (14.52)	0.479*** (14.52)	0.483*** (14.62)	0.483*** (14.62)	0.491*** (14.78)	0.491*** (14.77)	0.491*** (14.75)	0.488*** (14.39)	0.487*** (14.31)
cumcapet~1	-0.0110*** (-22.94)	-0.0111*** (-23.01)	-0.0116*** (-24.42)	-0.0117*** (-24.73)	-0.0147*** (-34.67)	-0.0150*** (-35.36)	-0.0148*** (-37.61)	-0.0180*** (-46.56)	-0.0158*** (-48.93)
exports	0.00000609*** (4.03)	0.00000613*** (4.05)	0.00000579*** (3.82)	0.00000579*** (3.82)	0.0000101*** (6.76)	0.00000950*** (6.37)	0.00000964*** (6.50)	0.00000777*** (5.14)	0.00000981*** (6.52)
janapril	-0.991 (-0.73)	-1.004 (-0.74)	-0.868 (-0.64)						
mayaug	7.338*** (4.86)	7.293*** (4.83)	7.492*** (4.96)	8.237*** (8.54)	7.398*** (7.64)	7.768*** (8.04)	7.762*** (8.03)	7.955*** (8.06)	8.870*** (7.52)
septnov	2.721 (1.72)	2.710 (1.71)	1.739 (1.10)	2.363 (1.90)	2.535* (2.02)	3.139* (2.51)	3.354** (2.74)	2.090 (1.67)	3.288* (2.39)
hurricane	-3.026 (-1.10)								
econcrisis	-25.67*** (-7.24)	-27.10*** (-8.22)							
diesel	-28.84*** (-22.63)	-28.90*** (-22.71)	-29.65*** (-23.31)	-29.81*** (-23.88)	-35.67*** (-30.01)	-36.47*** (-30.89)	-35.78*** (-40.31)	-37.45*** (-41.44)	-39.23*** (-44.06)
gulf	-0.861*** (-15.13)	-0.857*** (-15.09)	-0.825*** (-14.54)	-0.823*** (-14.52)					
illriver	-0.102*** (-26.62)	-0.102*** (-26.60)	-0.104*** (-27.03)	-0.103*** (-27.83)	-0.0893*** (-24.78)	-0.0831*** (-24.26)	-0.0837*** (-24.90)	-0.0822*** (-23.97)	-0.0820*** (-23.80)
pnw	1.182*** (13.92)	1.176*** (13.88)	1.145*** (13.51)	1.145*** (13.51)	0.0111 (0.33)	0.0293 (0.89)			
secunit	0.0188*** (8.54)	0.0182*** (8.52)	0.0198*** (9.25)	0.0197*** (9.24)	0.0114*** (5.49)				
matunit	0.0514*** (18.27)	0.0514*** (18.28)	0.0490*** (17.50)	0.0492*** (17.56)	0.0506*** (17.97)	0.0502*** (17.85)	0.0494*** (18.57)	0.0632*** (23.70)	0.0855*** (55.98)
matshuttle	0.0150*** (5.29)	0.0151*** (5.34)	0.0199*** (7.14)	0.0200*** (7.21)	0.0296*** (10.94)	0.0306*** (11.32)	0.0304*** (11.29)	0.0281*** (10.22)	
disrup2	2.750* (2.58)	2.756** (2.58)	2.683* (2.51)	2.715* (2.54)	1.783 (1.66)	1.896 (1.77)	2.012 (1.89)	0.645 (0.59)	0.266 (0.21)
disrup1									1.437 (1.07)
_cons	-33.60*** (-6.77)	-33.88*** (-6.84)	-38.79*** (-7.87)	-39.97*** (-8.74)	-60.48*** (-13.83)	-61.47*** (-14.05)	-59.94*** (-14.91)	-81.86*** (-20.35)	-53.73*** (-18.34)
N	17938	17938	17938	17938	17938	17938	17938	17938	17938
R-sq	0.327	0.327	0.324	0.324	0.316	0.315	0.315	0.286	0.282



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-4.97e-08 (-1.66)	-5.00e-08 (-1.67)	-4.48e-08 (-1.49)	-4.17e-08 (-1.39)	3.79e-08 (1.26)	3.26e-08 (1.09)	2.55e-08 (0.85)		
chgbasis	0.462*** (28.50)	0.462*** (28.50)	0.462*** (28.51)	0.462*** (28.48)	0.462*** (28.39)	0.460*** (28.24)	0.462*** (28.33)	0.462*** (28.33)	0.462*** (28.22)
cumcapet~1	-0.00340*** (-22.83)	-0.00339*** (-22.82)	-0.00354*** (-23.86)	-0.00357*** (-24.22)	-0.00459*** (-32.34)	-0.00483*** (-34.26)	-0.00513*** (-37.10)	-0.00512*** (-37.32)	-0.00678*** (-55.90)
exports	-0.0000217*** (-30.76)	-0.0000217*** (-30.78)	-0.0000220*** (-31.18)	-0.0000220*** (-31.27)	-0.0000206*** (-29.15)	-0.0000207*** (-29.28)	-0.0000218*** (-31.21)	-0.0000218*** (-31.20)	-0.0000257*** (-37.55)
janapril	-1.659** (-2.58)	-1.660** (-2.58)	-1.699** (-2.64)						
mayaug	19.48*** (26.42)	19.49*** (26.44)	19.47*** (26.40)	20.96*** (44.09)	20.07*** (42.18)	20.44*** (42.97)	20.49*** (43.04)	20.49*** (43.05)	19.62*** (34.29)
septnov	6.617*** (8.57)	6.623*** (8.57)	6.157*** (7.98)	7.419*** (12.26)	8.171*** (13.47)	8.392*** (13.82)	7.245*** (12.10)	7.258*** (12.13)	6.174*** (9.33)
hurricane	1.462 (0.86)								
econcrisis	-19.77*** (-10.19)	-19.14*** (-10.67)							
diesel	-7.311*** (-12.10)	-7.284*** (-12.07)	-7.445*** (-12.33)	-7.719*** (-12.98)	-10.01*** (-16.98)	-11.57*** (-19.96)	-15.59*** (-35.01)	-15.58*** (-35.00)	-12.75*** (-29.43)
gulf	-0.697*** (-24.36)	-0.698*** (-24.42)	-0.690*** (-24.12)	-0.688*** (-24.08)					
illriver	-0.119*** (-61.60)	-0.119*** (-61.62)	-0.121*** (-62.84)	-0.120*** (-64.18)	-0.112*** (-60.78)	-0.103*** (-59.46)	-0.101*** (-58.44)	-0.101*** (-58.45)	-0.101*** (-58.22)
pnw	0.811*** (17.85)	0.812*** (17.90)	0.801*** (17.63)	0.803*** (17.68)	-0.212*** (-12.50)	-0.183*** (-10.86)			
secunit	0.0185*** (17.24)	0.0187*** (17.63)	0.0198*** (18.72)	0.0197*** (18.64)	0.0146*** (14.05)				
matunit	0.0574*** (42.97)	0.0573*** (42.96)	0.0563*** (42.26)	0.0565*** (42.54)	0.0579*** (43.46)	0.0589*** (44.24)	0.0652*** (54.31)	0.0652*** (54.32)	0.0391*** (61.29)
matshuttle	-0.0301*** (-26.59)	-0.0302*** (-26.60)	-0.0285*** (-25.35)	-0.0284*** (-25.29)	-0.0276*** (-24.47)	-0.0272*** (-24.11)	-0.0286*** (-25.52)	-0.0287*** (-25.60)	
disrup2	-0.431 (-0.82)	-0.430 (-0.82)	-0.356 (-0.68)	-0.209 (-0.40)	-0.522 (-1.00)	-0.700 (-1.34)	-1.192* (-2.29)	-1.188* (-2.28)	-1.173 (-1.89)
disrup1									-0.717 (-1.10)
_cons	12.21*** (6.34)	12.28*** (6.39)	11.24*** (5.85)	9.201*** (5.23)	5.995*** (3.40)	4.153* (2.36)	-1.730 (-1.03)	-1.333 (-0.83)	-25.74*** (-19.61)
N	77686	77686	77686	77686	77686	77686	77686	77686	77686
R-sq	0.254	0.254	0.253	0.253	0.247	0.245	0.244	0.244	0.238

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000218*** (6.88)	0.000000222*** (7.00)	0.000000219*** (6.91)	0.000000214*** (6.75)	0.000000257*** (8.14)	0.000000239*** (7.57)	0.000000221*** (7.06)		
chgbasis	0.460*** (25.05)	0.461*** (25.08)	0.461*** (25.08)	0.462*** (25.13)	0.464*** (25.21)	0.462*** (25.09)	0.463*** (25.14)	0.463*** (25.13)	0.463*** (25.13)
cumcapet~1	-0.0132*** (-55.61)	-0.0132*** (-55.79)	-0.0136*** (-57.68)	-0.0135*** (-57.85)	-0.0151*** (-71.32)	-0.0153*** (-72.99)	-0.0156*** (-77.08)	-0.0151*** (-79.53)	-0.0149*** (-96.48)
exports	-0.00000375*** (-4.88)	-0.00000370*** (-4.82)	-0.00000394*** (-5.13)	-0.00000393*** (-5.11)	-0.00000204** (-2.68)	-0.00000223** (-2.93)	-0.00000259*** (-3.42)	-0.00000233** (-3.08)	-0.00000206** (-2.74)
janapril	2.169** (3.18)	2.167** (3.17)	2.219** (3.25)						
mayaug	17.33*** (22.29)	17.30*** (22.25)	17.35*** (22.30)	15.44*** (30.42)	14.67*** (28.98)	15.01*** (29.70)	15.03*** (29.73)	15.11*** (29.90)	14.43*** (23.71)
septnov	8.833*** (10.85)	8.819*** (10.83)	8.147*** (10.02)	6.544*** (10.12)	6.555*** (10.12)	6.899*** (10.66)	6.349*** (10.00)	6.632*** (10.47)	6.085*** (8.70)
hurricane	-3.536* (-2.17)								
econcrisis	-22.91*** (-11.26)	-24.54*** (-12.98)							
diesel	-18.66*** (-28.14)	-18.72*** (-28.26)	-19.14*** (-28.90)	-18.72*** (-28.83)	-21.51*** (-34.28)	-22.53*** (-36.38)	-24.36*** (-53.29)	-24.45*** (-53.49)	-24.63*** (-54.93)
gulf	-0.518*** (-16.94)	-0.513*** (-16.82)	-0.495*** (-16.23)	-0.500*** (-16.39)					
illriver	-0.122*** (-58.46)	-0.122*** (-58.43)	-0.124*** (-59.50)	-0.126*** (-62.24)	-0.118*** (-59.97)	-0.111*** (-60.22)	-0.110*** (-60.33)	-0.110*** (-60.61)	-0.110*** (-60.51)
pnw	0.645*** (13.74)	0.638*** (13.61)	0.619*** (13.22)	0.619*** (13.20)	-0.0943*** (-5.40)	-0.0759*** (-4.37)			
secunit	0.0144*** (12.63)	0.0138*** (12.45)	0.0151*** (13.63)	0.0152*** (13.74)	0.0106*** (9.91)				
matunit	0.0738*** (51.47)	0.0739*** (51.51)	0.0724*** (50.61)	0.0720*** (50.52)	0.0735*** (51.54)	0.0736*** (51.62)	0.0762*** (58.34)	0.0752*** (57.90)	0.0769*** (101.98)
matshuttle	-0.00435** (-3.14)	-0.00423** (-3.06)	-0.00132 (-0.97)	-0.00162 (-1.19)	0.00210 (1.56)	0.00303* (2.26)	0.00294* (2.19)	0.00206 (1.54)	
disrup2	-0.0453 (-0.08)	-0.0452 (-0.08)	-0.0292 (-0.05)	-0.160 (-0.29)	-0.817 (-1.47)	-0.928 (-1.67)	-1.168* (-2.12)	-1.109* (-2.01)	-0.352 (-0.55)
disrup1									-1.425* (-2.09)
_cons	-56.79*** (-22.28)	-57.17*** (-22.48)	-59.94*** (-23.63)	-56.82*** (-24.20)	-65.55*** (-28.62)	-67.24*** (-29.42)	-69.95*** (-31.79)	-63.61*** (-31.65)	-61.00*** (-41.39)
N	77889	77889	77889	77889	77889	77889	77889	77889	77889
R-sq	0.265	0.265	0.263	0.263	0.261	0.260	0.260	0.259	0.259

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000919*** (4.94)	0.000000915*** (4.91)	0.000000861*** (4.63)	0.000000804*** (4.39)	0.000000771*** (4.28)	0.000000896*** (5.06)	0.000000795*** (4.54)		
chgbasis	0.466*** (12.88)	0.465*** (12.87)	0.464*** (12.84)	0.465*** (12.86)	0.465*** (12.86)	0.466*** (12.86)	0.465*** (12.84)	0.467*** (12.88)	0.467*** (12.88)
cumcapet~1	-0.0131*** (-20.15)	-0.0131*** (-20.13)	-0.0127*** (-19.67)	-0.0124*** (-19.87)	-0.0121*** (-21.29)	-0.0119*** (-21.03)	-0.0114*** (-20.77)	-0.0101*** (-21.51)	-0.0116*** (-32.09)
exports	-0.0000184*** (-11.35)	-0.0000184*** (-11.39)	-0.0000182*** (-11.22)	-0.0000181*** (-11.17)	-0.0000182*** (-11.23)	-0.0000188*** (-11.66)	-0.0000178*** (-11.21)	-0.0000162*** (-10.46)	-0.0000168*** (-10.83)
janapril	2.669 (1.79)	2.655 (1.78)	2.525 (1.69)						
mayaug	20.23*** (12.01)	20.27*** (12.04)	20.22*** (12.00)	18.05*** (16.52)	18.18*** (16.76)	17.90*** (16.53)	18.00*** (16.62)	18.41*** (17.04)	17.78*** (13.78)
septnov	-2.502 (-1.43)	-2.471 (-1.41)	-2.018 (-1.15)	-3.743** (-2.63)	-3.683** (-2.59)	-3.831** (-2.70)	-2.763* (-1.98)	-1.842 (-1.34)	-3.066* (-2.03)
hurricane	4.859 (1.17)								
econcrisis	20.28*** (4.01)	22.43*** (4.76)							
diesel	-28.42*** (-18.02)	-28.30*** (-17.98)	-27.78*** (-17.67)	-27.12*** (-17.80)	-26.70*** (-18.20)	-25.74*** (-17.80)	-22.19*** (-20.51)	-20.97*** (-20.00)	-20.34*** (-19.51)
gulf	0.115 (1.55)	0.111 (1.49)	0.0899 (1.21)	0.0757 (1.02)					
illriver	-0.0551*** (-12.01)	-0.0552*** (-12.04)	-0.0538*** (-11.74)	-0.0559*** (-12.71)	-0.0567*** (-13.06)	-0.0634*** (-15.97)	-0.0645*** (-16.28)	-0.0624*** (-15.84)	-0.0600*** (-15.30)
pnw	0.0313 (0.28)	0.0359 (0.32)	0.0616 (0.55)	0.0733 (0.66)	0.178*** (4.14)	0.158*** (3.69)			
secunit	-0.00944*** (-3.75)	-0.00897*** (-3.61)	-0.00991*** (-4.00)	-0.00974*** (-3.94)	-0.00921*** (-3.81)				
matunit	0.0766*** (22.45)	0.0765*** (22.42)	0.0769*** (22.54)	0.0762*** (22.51)	0.0757*** (22.60)	0.0757*** (22.58)	0.0696*** (23.84)	0.0653*** (23.63)	0.0545*** (32.21)
matshuttle	-0.00715* (-2.17)	-0.00724* (-2.20)	-0.00959** (-2.94)	-0.0104** (-3.22)	-0.0109*** (-3.41)	-0.0114*** (-3.58)	-0.0108*** (-3.40)	-0.0151*** (-4.93)	
disrup2	-10.52*** (-8.70)	-10.50*** (-8.68)	-10.46*** (-8.64)	-10.62*** (-8.81)	-10.54*** (-8.76)	-10.40*** (-8.64)	-10.04*** (-8.36)	-9.383*** (-7.87)	-9.795*** (-6.96)
disrup1									-0.468 (-0.32)
_cons	-67.30*** (-8.43)	-66.71*** (-8.37)	-62.99*** (-7.93)	-57.59*** (-7.92)	-55.86*** (-7.90)	-55.68*** (-7.87)	-47.78*** (-7.08)	-25.74*** (-5.48)	-42.86*** (-13.50)
N	12255	12255	12255	12255	12255	12255	12255	12255	12255
R-sq	0.271	0.271	0.269	0.269	0.269	0.268	0.268	0.266	0.265

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000217*** (-11.24)	-0.000000217*** (-11.23)	-0.000000219*** (-11.27)	-0.000000219*** (-11.29)	-0.000000185*** (-9.49)	-0.000000185*** (-9.32)	-0.000000182*** (-9.48)	-0.000000183***	
chgbasis	0.475*** (23.56)	0.475*** (23.59)	0.487*** (24.04)	0.487*** (24.04)	0.494*** (24.22)	0.495*** (24.25)	0.495*** (24.25)	0.496*** (24.26)	0.494*** (24.08)
cumcapet~1	-0.0103*** (-45.08)	-0.0103*** (-45.03)	-0.0111*** (-48.41)	-0.0111*** (-49.05)	-0.0137*** (-66.21)	-0.0140*** (-68.25)	-0.0140*** (-71.25)	-0.0141*** (-72.07)	-0.0117*** (-70.87)
exports	0.00000731*** (8.80)	0.00000731*** (8.80)	0.00000683*** (8.18)	0.00000681*** (8.15)	0.00000973*** (11.66)	0.00000956*** (11.46)	0.00000953*** (11.52)	0.00000997*** (12.06)	0.0000121*** (14.68)
janapril	-1.343 (-1.85)	-1.329 (-1.83)	-1.245 (-1.70)						
mayaug	-3.324*** (-3.98)	-3.293*** (-3.94)	-3.200*** (-3.81)	-2.127*** (-3.82)	-3.687*** (-6.62)	-3.296*** (-5.93)	-3.298*** (-5.94)	-3.327*** (-5.98)	0.680 (1.01)
septnov	-5.756*** (-6.56)	-5.713*** (-6.51)	-7.341*** (-8.34)	-6.448*** (-9.12)	-6.191*** (-8.70)	-5.968*** (-8.38)	-5.997*** (-8.59)	-6.214*** (-8.90)	-1.556* (-2.01)
hurricane	5.610** (2.87)								
econcrisis	-47.22*** (-23.16)	-44.88*** (-24.02)							
diesel	-10.31*** (-14.31)	-10.28*** (-14.27)	-11.37*** (-15.73)	-11.65*** (-16.53)	-16.61*** (-24.25)	-17.56*** (-25.96)	-17.66*** (-37.02)	-17.83*** (-37.39)	-20.08*** (-43.04)
gulf	-0.927*** (-28.42)	-0.931*** (-28.57)	-0.884*** (-27.04)	-0.882*** (-27.04)					
illriver	-0.113*** (-51.63)	-0.113*** (-51.72)	-0.117*** (-53.36)	-0.116*** (-54.65)	-0.104*** (-49.88)	-0.0983*** (-50.03)	-0.0982*** (-50.38)	-0.0969*** (-49.80)	-0.102*** (-52.50)
pnw	1.283*** (25.32)	1.291*** (25.50)	1.243*** (24.45)	1.245*** (24.50)	-0.0233 (-1.20)	-0.00406 (-0.21)			
secunit	0.0153*** (12.10)	0.0160*** (12.85)	0.0185*** (14.85)	0.0185*** (14.80)	0.0104*** (8.50)				
matunit	0.0381*** (23.55)	0.0382*** (23.62)	0.0357*** (21.96)	0.0360*** (22.28)	0.0376*** (23.16)	0.0376*** (23.16)	0.0378*** (26.20)	0.0378*** (26.17)	0.0646*** (82.07)
matshuttle	0.0198*** (13.04)	0.0196*** (12.92)	0.0253*** (16.76)	0.0254*** (16.80)	0.0314*** (20.90)	0.0327*** (21.87)	0.0327*** (21.94)	0.0334*** (22.44)	
disrup2	9.943*** (16.48)	9.948*** (16.49)	9.948*** (16.40)	10.04*** (16.61)	8.703*** (14.35)	8.598*** (14.17)	8.587*** (14.21)	8.447*** (13.97)	6.611*** (9.42)
disrup1									6.518*** (8.74)
_cons	-65.54*** (-24.90)	-65.21*** (-24.79)	-70.43*** (-26.73)	-71.96*** (-29.05)	-81.84*** (-33.18)	-84.97*** (-34.82)	-85.09*** (-35.77)	-90.42*** (-39.08)	-56.62*** (-33.61)
N	53372	53372	53372	53372	53372	53372	53372	53372	53372
R-sq	0.269	0.268	0.261	0.260	0.250	0.249	0.249	0.248	0.242

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-5.39e-08*** (-3.90)	-5.43e-08*** (-3.93)	-5.45e-08*** (-3.95)	-5.48e-08*** (-3.97)	-5.63e-08*** (-4.08)	-5.34e-08*** (-3.87)	-6.62e-08*** (-4.78)		
chgbasis	0.503*** (26.89)	0.503*** (26.89)	0.503*** (26.87)	0.503*** (26.87)	0.503*** (26.87)	0.504*** (26.91)	0.508*** (27.01)	0.508*** (27.01)	0.510*** (26.93)
cumcapet~1	-0.00170*** (-16.67)	-0.00171*** (-16.69)	-0.00173*** (-16.98)	-0.00174*** (-17.06)	-0.00185*** (-18.43)	-0.00181*** (-18.10)	-0.00214*** (-21.59)	-0.00207*** (-21.14)	-0.00280*** (-29.48)
exports	0.0000112*** (12.99)	0.0000113*** (13.03)	0.0000111*** (12.88)	0.0000111*** (12.86)	0.0000114*** (13.29)	0.0000114*** (13.26)	0.00000900*** (10.49)	0.00000906*** (10.56)	0.00000241** (2.90)
janapril	-0.553 (-0.71)	-0.541 (-0.69)	-0.546 (-0.70)						
mayaug	1.523 (1.68)	1.486 (1.64)	1.478 (1.63)	1.951** (3.24)	1.583** (2.64)	1.484* (2.48)	1.377* (2.29)	1.396* (2.32)	4.486*** (6.08)
septnov	-5.623*** (-5.97)	-5.645*** (-5.99)	-5.826*** (-6.19)	-5.434*** (-7.20)	-5.373*** (-7.11)	-5.498*** (-7.28)	-7.726*** (-10.29)	-7.650*** (-10.18)	-4.711*** (-5.57)
hurricane	-6.472* (-2.30)								
econcrisis	-8.071** (-2.65)	-11.33*** (-4.20)							
diesel	5.653*** (7.45)	5.592*** (7.37)	5.584*** (7.36)	5.493*** (7.35)	5.207*** (6.98)	5.702*** (7.74)	-3.503*** (-5.81)	-3.686*** (-6.12)	2.232*** (3.93)
gulf	-0.242*** (-6.18)	-0.241*** (-6.14)	-0.236*** (-6.02)	-0.235*** (-6.00)					
illriver	-0.0699*** (-29.52)	-0.0697*** (-29.47)	-0.0704*** (-29.83)	-0.0700*** (-30.82)	-0.0677*** (-30.23)	-0.0705*** (-33.20)	-0.0643*** (-30.40)	-0.0644*** (-30.44)	-0.0683*** (-32.09)
pnw	-0.102 (-1.55)	-0.105 (-1.59)	-0.116 (-1.76)	-0.116 (-1.77)	-0.487*** (-21.16)	-0.495*** (-21.61)			
secunit	-0.00299* (-2.35)	-0.00327** (-2.58)	-0.00288* (-2.28)	-0.00289* (-2.28)	-0.00492*** (-4.04)				
matunit	0.0337*** (18.99)	0.0337*** (19.01)	0.0331*** (18.73)	0.0332*** (18.80)	0.0330*** (18.71)	0.0327*** (18.53)	0.0485*** (30.11)	0.0481*** (29.86)	0.00720*** (10.84)
matshuttle	-0.0330*** (-22.98)	-0.0329*** (-22.94)	-0.0323*** (-22.61)	-0.0322*** (-22.60)	-0.0327*** (-22.92)	-0.0327*** (-22.95)	-0.0389*** (-27.77)	-0.0389*** (-27.76)	
disrup2	2.371*** (3.64)	2.357*** (3.62)	2.380*** (3.65)	2.433*** (3.76)	2.273*** (3.51)	2.294*** (3.55)	1.416* (2.18)	1.406* (2.17)	-2.407** (-3.15)
disrup1									7.883*** (9.57)
_cons	-6.650** (-2.96)	-6.908** (-3.08)	-7.000** (-3.12)	-7.615*** (-3.69)	-5.632** (-2.77)	-4.966* (-2.45)	-15.92*** (-8.07)	-15.15*** (-7.70)	-49.92*** (-30.04)
N	52576	52576	52576	52576	52576	52576	52576	52576	52576
R-sq	0.105	0.105	0.104	0.104	0.104	0.104	0.096	0.095	0.084

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-4.07e-08*** (-9.30)	-4.09e-08*** (-9.34)	-4.22e-08*** (-9.67)	-4.32e-08*** (-9.91)	-4.20e-08*** (-9.65)	-4.28e-08*** (-9.83)	-7.11e-08*** (-16.49)		
chgbasis	0.501*** (54.55)	0.501*** (54.56)	0.501*** (54.57)	0.501*** (54.55)	0.501*** (54.53)	0.500*** (54.47)	0.502*** (54.34)	0.502*** (54.30)	0.505*** (54.37)
cumcapet~1	-0.00160*** (-17.96)	-0.00160*** (-18.03)	-0.00165*** (-18.68)	-0.00169*** (-19.18)	-0.00151*** (-18.11)	-0.00155*** (-18.81)	-0.00243*** (-30.43)	-0.00239*** (-29.89)	-0.00394*** (-55.28)
exports	0.00000371*** (8.81)	0.00000375*** (8.90)	0.00000366*** (8.70)	0.00000363*** (8.63)	0.00000334*** (7.98)	0.00000324*** (7.76)	0.000000751 (1.81)	0.00000117** (2.82)	-0.00000259*** (-6.34)
janapril	-1.594*** (-4.20)	-1.596*** (-4.21)	-1.594*** (-4.20)						
mayaug	1.468*** (3.39)	1.437*** (3.32)	1.444*** (3.33)	2.823*** (9.99)	2.982*** (10.59)	3.083*** (10.98)	3.022*** (10.71)	3.152*** (11.17)	4.312*** (12.54)
septnov	-2.786*** (-6.14)	-2.797*** (-6.16)	-2.950*** (-6.51)	-1.800*** (-4.99)	-1.853*** (-5.14)	-1.739*** (-4.83)	-4.267*** (-12.00)	-4.054*** (-11.40)	-3.490*** (-8.79)
hurricane	-2.704** (-2.83)								
econcrisis	-4.091*** (-3.58)	-5.340*** (-5.06)							
diesel	-4.960*** (-14.21)	-5.004*** (-14.35)	-5.061*** (-14.52)	-5.329*** (-15.55)	-4.881*** (-14.56)	-5.082*** (-15.27)	-13.31*** (-51.75)	-13.81*** (-54.05)	-10.92*** (-43.99)
gulf	0.0968*** (5.93)	0.0990*** (6.07)	0.102*** (6.26)	0.103*** (6.32)					
illriver	-0.0631*** (-56.30)	-0.0630*** (-56.26)	-0.0635*** (-56.82)	-0.0623*** (-57.60)	-0.0637*** (-60.09)	-0.0620*** (-61.93)	-0.0557*** (-56.07)	-0.0555*** (-55.84)	-0.0562*** (-56.23)
pnw	-0.525*** (-20.29)	-0.528*** (-20.43)	-0.531*** (-20.57)	-0.528*** (-20.46)	-0.377*** (-38.88)	-0.374*** (-38.64)			
secunit	0.00186** (3.00)	0.00156* (2.56)	0.00183** (3.01)	0.00182** (2.99)	0.00283*** (4.83)				
matunit	0.0332*** (41.45)	0.0332*** (41.50)	0.0329*** (41.22)	0.0332*** (41.68)	0.0331*** (41.55)	0.0331*** (41.58)	0.0453*** (61.77)	0.0452*** (61.60)	0.0182*** (49.93)
matshuttle	-0.0277*** (-38.68)	-0.0277*** (-38.63)	-0.0271*** (-38.30)	-0.0270*** (-38.21)	-0.0274*** (-38.83)	-0.0272*** (-38.64)	-0.0288*** (-40.81)	-0.0297*** (-42.09)	
disrup2	2.564*** (8.28)	2.562*** (8.28)	2.566*** (8.29)	2.685*** (8.71)	2.791*** (9.07)	2.807*** (9.12)	1.542*** (5.01)	1.580*** (5.13)	-0.0479 (-0.13)
disrup1									2.781*** (7.27)
_cons	13.09*** (11.34)	12.91*** (11.20)	12.51*** (10.88)	10.60*** (10.04)	11.12*** (10.57)	10.79*** (10.27)	-1.266 (-1.26)	-0.0156 (-0.02)	-28.21*** (-35.73)
N	148717	148717	148717	148717	148717	148717	148717	148717	148717
R-sq	0.143	0.143	0.143	0.142	0.142	0.142	0.134	0.132	0.122

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000202*** (-21.96)	-0.00000202*** (-22.05)	-0.00000199*** (-21.72)	-0.00000200*** (-21.93)	-0.00000188*** (-20.65)	-0.00000164*** (-18.61)	-0.00000164*** (-18.62)		
chgbasis	0.492*** (19.57)	0.492*** (19.57)	0.493*** (19.56)	0.492*** (19.55)	0.494*** (19.55)	0.497*** (19.67)	0.498*** (19.64)	0.500*** (19.58)	0.509*** (19.50)
cumcapet~1	0.00239*** (19.69)	0.00239*** (19.68)	0.00235*** (19.38)	0.00233*** (19.26)	0.00216*** (17.92)	0.00226*** (18.79)	0.00211*** (17.58)	0.00204*** (16.86)	0.00134*** (10.99)
exports	0.00000954*** (7.95)	0.00000954*** (7.96)	0.00000912*** (7.61)	0.00000907*** (7.57)	0.00000950*** (7.91)	0.00000890*** (7.40)	0.00000645*** (5.42)	0.00000546*** (4.56)	-0.00000892*** (-7.67)
janapril	-3.068** (-2.72)	-3.082** (-2.73)	-3.170** (-2.81)						
mayaug	-3.147* (-2.37)	-3.162* (-2.38)	-3.246* (-2.44)	-0.433 (-0.50)	-1.646 (-1.90)	-1.838* (-2.12)	-2.527** (-2.91)	-2.100* (-2.40)	2.071 (1.92)
septnov	-8.320*** (-6.01)	-8.338*** (-6.03)	-8.773*** (-6.34)	-6.381*** (-5.86)	-5.942*** (-5.44)	-5.764*** (-5.27)	-8.230*** (-7.63)	-6.997*** (-6.46)	-3.292** (-2.66)
hurricane	-3.834 (-0.94)								
econcrisis	-22.89*** (-5.44)	-24.84*** (-6.78)							
diesel	9.629*** (8.41)	9.647*** (8.42)	9.564*** (8.35)	8.971*** (7.96)	7.093*** (6.34)	9.026*** (8.18)	0.145 (0.17)	-4.150*** (-4.99)	8.154*** (10.45)
gulf	-0.648*** (-12.21)	-0.645*** (-12.17)	-0.635*** (-11.97)	-0.632*** (-11.91)					
illriver	-0.0714*** (-21.06)	-0.0713*** (-21.05)	-0.0734*** (-21.72)	-0.0711*** (-21.69)	-0.0686*** (-20.93)	-0.0820*** (-27.34)	-0.0786*** (-26.23)	-0.0831*** (-27.66)	-0.0812*** (-26.39)
pnw	0.603*** (7.04)	0.597*** (6.99)	0.576*** (6.74)	0.583*** (6.82)	-0.362*** (-11.32)	-0.404*** (-12.73)			
secunit	-0.0164*** (-8.57)	-0.0167*** (-8.80)	-0.0155*** (-8.18)	-0.0156*** (-8.25)	-0.0189*** (-10.07)				
matunit	0.0514*** (19.89)	0.0513*** (19.87)	0.0502*** (19.46)	0.0511*** (19.97)	0.0532*** (20.78)	0.0507*** (19.89)	0.0665*** (29.69)	0.0655*** (29.08)	-0.0122*** (-13.83)
matshuttle	-0.0621*** (-30.85)	-0.0620*** (-30.83)	-0.0608*** (-30.34)	-0.0612*** (-30.59)	-0.0646*** (-32.55)	-0.0646*** (-32.48)	-0.0713*** (-37.10)	-0.0721*** (-37.28)	
disrup2	2.192* (2.28)	2.193* (2.28)	2.257* (2.34)	2.716** (2.86)	2.148* (2.26)	2.599** (2.73)	1.576 (1.66)	1.908* (2.00)	-3.628** (-3.10)
disrup1									9.874*** (7.91)
_cons	26.92*** (8.05)	26.88*** (8.04)	27.29*** (8.15)	23.96*** (7.65)	32.23*** (10.53)	37.40*** (12.37)	30.57*** (10.24)	40.47*** (13.70)	-26.79*** (-10.66)
N	27917	27917	27917	27917	27917	27917	27917	27917	27917
R-sq	0.143	0.143	0.142	0.141	0.137	0.134	0.129	0.118	0.076

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000112 (0.44)	0.000000105 (0.41)	0.000000124 (0.49)	0.000000159 (0.62)	0.000000319 (1.25)	0.000000300 (1.19)	0.00000137*** (5.50)		
chgbasis	0.490*** (12.79)	0.490*** (12.80)	0.490*** (12.80)	0.490*** (12.77)	0.489*** (12.72)	0.489*** (12.71)	0.496*** (12.72)	0.495*** (12.67)	0.504*** (12.72)
cumcapet~1	0.00794*** (15.12)	0.00785*** (14.97)	0.00776*** (14.84)	0.00750*** (14.40)	0.00588*** (12.20)	0.00586*** (12.19)	0.00266*** (5.82)	0.00334*** (7.60)	-0.000672 (-1.72)
exports	-0.00000848*** (-4.38)	-0.00000811*** (-4.20)	-0.00000809*** (-4.19)	-0.00000812*** (-4.20)	-0.00000601** (-3.13)	-0.00000603** (-3.14)	-0.00000970*** (-5.00)	-0.00000913*** (-4.71)	-0.0000176*** (-9.21)
janapril	-8.869*** (-5.00)	-8.924*** (-5.03)	-8.926*** (-5.03)						
mayaug	-4.094* (-2.06)	-4.302* (-2.16)	-4.294* (-2.16)	3.481** (2.78)	2.586* (2.07)	2.627* (2.10)	3.736** (2.95)	3.741** (2.95)	7.773*** (5.07)
septnov	-3.888 (-1.89)	-3.975 (-1.94)	-4.107* (-2.00)	2.046 (1.24)	1.530 (0.93)	1.599 (0.97)	-2.167 (-1.31)	-1.814 (-1.09)	0.198 (0.11)
hurricane	-14.76** (-2.97)								
econcrisis	-21.01* (-2.03)	-22.27* (-2.16)							
diesel	15.22*** (9.20)	14.89*** (9.02)	14.78*** (8.95)	13.11*** (8.10)	10.76*** (6.74)	10.63*** (6.73)	-7.114*** (-5.50)	-6.430*** (-4.99)	-0.0779 (-0.06)
gulf	-0.734*** (-8.63)	-0.715*** (-8.42)	-0.709*** (-8.36)	-0.687*** (-8.10)					
illriver	-0.0846*** (-15.48)	-0.0843*** (-15.43)	-0.0848*** (-15.54)	-0.0767*** (-14.70)	-0.0646*** (-12.88)	-0.0636*** (-13.57)	-0.0504*** (-10.72)	-0.0500*** (-10.62)	-0.0582*** (-12.21)
pnw	0.165 (1.17)	0.137 (0.98)	0.131 (0.93)	0.108 (0.77)	-0.953*** (-18.95)	-0.951*** (-18.96)			
secunit	0.00973*** (3.54)	0.00835** (3.08)	0.00860** (3.18)	0.00912*** (3.37)	0.00140 (0.55)				
matunit	0.0217*** (6.01)	0.0222*** (6.16)	0.0220*** (6.10)	0.0238*** (6.64)	0.0233*** (6.48)	0.0235*** (6.56)	0.0478*** (14.07)	0.0503*** (14.92)	-0.00315 (-1.70)
matshuttle	-0.0610*** (-18.84)	-0.0609*** (-18.80)	-0.0603*** (-18.68)	-0.0602*** (-18.64)	-0.0565*** (-17.61)	-0.0565*** (-17.63)	-0.0562*** (-17.29)	-0.0599*** (-18.80)	
disrup2	4.742*** (3.42)	4.728*** (3.41)	4.717*** (3.41)	5.142*** (3.72)	4.614*** (3.33)	4.636*** (3.35)	2.497 (1.78)	3.070* (2.19)	-0.883 (-0.52)
disrup1									7.523*** (4.22)
_cons	85.37*** (16.14)	84.34*** (15.98)	83.71*** (15.88)	73.36*** (15.10)	68.66*** (14.20)	68.52*** (14.19)	31.64*** (7.05)	32.94*** (7.35)	-21.87*** (-6.00)
N	12016	12016	12016	12016	12016	12016	12016	12016	12016
R-sq	0.128	0.127	0.127	0.125	0.120	0.120	0.094	0.092	0.066



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000402*** (27.86)	0.000000401*** (27.82)	0.000000400*** (27.71)	0.000000397*** (27.52)	0.000000395*** (27.42)	0.000000395*** (27.80)	0.000000399*** (26.02)	0.000000374***	
chgbasis	0.501*** (43.90)	0.501*** (43.91)	0.501*** (43.90)	0.501*** (43.86)	0.501*** (43.88)	0.501*** (43.91)	0.503*** (43.90)	0.502*** (43.79)	0.505*** (43.66)
cumcapet~1	-0.00215*** (-28.35)	-0.00215*** (-28.37)	-0.00218*** (-28.82)	-0.00223*** (-29.60)	-0.00234*** (-31.66)	-0.00232*** (-31.53)	-0.00258*** (-35.33)	-0.00263*** (-36.00)	-0.00386*** (-55.67)
exports	0.000000404*** (7.54)	0.000000407*** (7.59)	0.000000395*** (7.37)	0.000000385*** (7.17)	0.000000401*** (7.49)	0.000000399*** (7.45)	0.000000209*** (3.93)	0.00000199*** (3.73)	-0.00000431*** (-8.24)
janapril	-3.549*** (-7.16)	-3.548*** (-7.16)	-3.555*** (-7.17)						
mayaug	-2.859*** (-4.93)	-2.879*** (-4.96)	-2.885*** (-4.97)	0.288 (0.77)	0.0215 (0.06)	-0.0218 (-0.06)	-0.185 (-0.50)	-0.313 (-0.83)	1.741*** (3.83)
septnov	-6.946*** (-11.48)	-6.958*** (-11.50)	-7.138*** (-11.81)	-4.478*** (-9.38)	-4.340*** (-9.10)	-4.366*** (-9.15)	-6.327*** (-13.42)	-6.680*** (-14.14)	-5.312*** (-10.09)
hurricane	-3.304* (-2.02)								
econcrisis	-9.750*** (-5.04)	-11.39*** (-6.48)							
diesel	3.512*** (7.39)	3.482*** (7.33)	3.458*** (7.28)	2.859*** (6.11)	2.581*** (5.53)	2.807*** (6.10)	-4.160*** (-11.37)	-3.113*** (-8.54)	2.864*** (8.25)
gulf	-0.195*** (-7.98)	-0.193*** (-7.90)	-0.190*** (-7.79)	-0.183*** (-7.48)					
illriver	-0.0657*** (-44.17)	-0.0657*** (-44.14)	-0.0664*** (-44.74)	-0.0635*** (-44.43)	-0.0621*** (-43.81)	-0.0636*** (-48.18)	-0.0600*** (-45.63)	-0.0588*** (-44.62)	-0.0599*** (-45.03)
pnw	-0.0621 (-1.57)	-0.0653 (-1.66)	-0.0718 (-1.82)	-0.0731 (-1.85)	-0.349*** (-24.47)	-0.353*** (-24.89)			
secunit	-0.00109 (-1.33)	-0.00133 (-1.63)	-0.000888 (-1.09)	-0.00104 (-1.28)	-0.00233** (-2.94)				
matunit	0.0372*** (33.61)	0.0372*** (33.62)	0.0367*** (33.25)	0.0372*** (33.77)	0.0373*** (33.88)	0.0371*** (33.77)	0.0492*** (49.65)	0.0477*** (48.13)	0.00365*** (8.28)
matshuttle	-0.0417*** (-45.48)	-0.0416*** (-45.44)	-0.0410*** (-45.01)	-0.0409*** (-44.89)	-0.0413*** (-45.41)	-0.0413*** (-45.42)	-0.0458*** (-51.20)	-0.0442*** (-49.43)	
disrup2	1.127** (2.74)	1.122** (2.73)	1.154** (2.81)	1.621*** (4.00)	1.525*** (3.76)	1.563*** (3.86)	0.957* (2.36)	0.886* (2.18)	-2.772*** (-5.70)
disrup1									6.398*** (12.33)
_cons	22.73*** (15.09)	22.57*** (15.01)	22.36*** (14.87)	18.09*** (13.10)	19.29*** (14.06)	19.68*** (14.41)	11.53*** (8.67)	9.541*** (7.17)	-33.24*** (-30.83)
N	133245	133245	133245	133245	133245	133245	133245	133245	133245
R-sq	0.106	0.106	0.106	0.106	0.105	0.105	0.101	0.096	0.081

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-2.01e-08 (-0.39)	-2.07e-08 (-0.40)	-4.15e-09 (-0.08)	-1.71e-09 (-0.03)	1.49e-08 (0.30)	-2.49e-08 (-0.50)	-2.66e-08 (-0.53)		
chgbasis	0.501*** (18.67)	0.502*** (18.67)	0.501*** (18.64)	0.501*** (18.65)	0.501*** (18.65)	0.502*** (18.66)	0.501*** (18.50)	0.501*** (18.50)	0.503*** (18.49)
cumcapet~1	-0.00393*** (-8.71)	-0.00393*** (-8.72)	-0.00411*** (-9.16)	-0.00405*** (-9.15)	-0.00430*** (-10.24)	-0.00352*** (-8.69)	-0.00473*** (-11.70)	-0.00473*** (-11.70)	-0.00851*** (-26.82)
exports	0.00000959*** (6.97)	0.00000960*** (6.97)	0.00000945*** (6.87)	0.00000946*** (6.87)	0.00000966*** (7.05)	0.00000895*** (6.54)	0.00000477*** (3.49)	0.00000482*** (3.54)	0.00000240 (1.77)
janapril	1.070 (0.85)	1.071 (0.85)	1.066 (0.85)						
mayaug	1.095 (0.75)	1.086 (0.75)	1.074 (0.74)	0.123 (0.13)	-0.0216 (-0.02)	-0.378 (-0.41)	-0.720 (-0.78)	-0.716 (-0.77)	3.712*** (3.31)
septnov	-6.042*** (-3.98)	-6.063*** (-4.00)	-6.451*** (-4.26)	-7.235*** (-6.04)	-7.171*** (-5.99)	-7.126*** (-5.95)	-11.76*** (-9.90)	-11.75*** (-9.89)	-9.157*** (-6.97)
hurricane	-2.979 (-0.91)								
econcrisis	-10.82** (-2.98)	-12.20*** (-3.69)							
diesel	9.602*** (7.93)	9.565*** (7.90)	9.327*** (7.71)	9.553*** (8.10)	9.128*** (7.91)	11.28*** (10.14)	-4.579*** (-5.54)	-4.567*** (-5.53)	-2.595** (-3.16)
gulf	-0.114* (-1.96)	-0.112 (-1.93)	-0.0980 (-1.69)	-0.101 (-1.74)					
illriver	-0.0671*** (-17.50)	-0.0671*** (-17.48)	-0.0679*** (-17.73)	-0.0688*** (-18.66)	-0.0678*** (-18.63)	-0.0784*** (-23.77)	-0.0724*** (-21.85)	-0.0723*** (-21.90)	-0.0661*** (-20.19)
pnw	-0.484*** (-5.42)	-0.488*** (-5.47)	-0.505*** (-5.66)	-0.505*** (-5.66)	-0.648*** (-19.68)	-0.686*** (-21.09)			
secunit	-0.0139*** (-6.49)	-0.0142*** (-6.74)	-0.0136*** (-6.48)	-0.0135*** (-6.44)	-0.0143*** (-6.97)				
matunit	0.0263*** (9.82)	0.0264*** (9.83)	0.0256*** (9.56)	0.0253*** (9.53)	0.0253*** (9.53)	0.0248*** (9.34)	0.0508*** (21.37)	0.0505*** (22.02)	0.0222*** (15.95)
matshuttle	-0.0308*** (-12.03)	-0.0307*** (-12.01)	-0.0293*** (-11.59)	-0.0295*** (-11.66)	-0.0290*** (-11.54)	-0.0318*** (-12.80)	-0.0379*** (-15.23)	-0.0378*** (-15.23)	
disrup2	4.778*** (4.69)	4.777*** (4.69)	4.781*** (4.69)	4.666*** (4.62)	4.573*** (4.53)	5.034*** (5.00)	3.535*** (3.49)	3.539*** (3.49)	-3.654** (-3.07)
disrup1									10.94*** (8.58)
_cons	21.10*** (4.73)	20.91*** (4.69)	19.92*** (4.47)	21.47*** (5.28)	21.04*** (5.19)	27.21*** (6.87)	4.706 (1.22)	4.946 (1.29)	-39.70*** (-14.32)
N	26715	26715	26715	26715	26715	26715	26715	26715	26715
R-sq	0.122	0.122	0.122	0.122	0.122	0.120	0.105	0.105	0.100

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000185*** (56.00)	0.000000185*** (56.00)	0.000000185*** (55.97)	0.000000185*** (55.97)	0.000000185*** (56.01)	0.000000185*** (56.03)	0.000000185*** (55.32)	0.000000183***	
chgbasis	0.501*** (55.35)	0.501*** (55.36)	0.501*** (55.37)	0.501*** (55.37)	0.501*** (55.32)	0.501*** (55.36)	0.502*** (55.19)	0.501*** (54.68)	0.504*** (54.82)
cumcapet~1	-0.00203*** (-18.30)	-0.00204*** (-18.38)	-0.00209*** (-19.00)	-0.00210*** (-19.21)	-0.00171*** (-16.95)	-0.00166*** (-16.71)	-0.00270*** (-28.22)	-0.00259*** (-26.80)	-0.00490*** (-60.61)
exports	0.00000488*** (11.92)	0.00000492*** (12.01)	0.00000487*** (11.89)	0.00000487*** (11.88)	0.00000442*** (10.87)	0.00000444*** (10.93)	0.00000257*** (6.35)	0.00000171*** (4.19)	-0.00000134*** (-3.30)
janapril	-0.154 (-0.42)	-0.157 (-0.43)	-0.154 (-0.42)						
mayaug	3.946*** (9.35)	3.919*** (9.29)	3.925*** (9.30)	4.058*** (14.68)	4.299*** (15.62)	4.249*** (15.46)	4.202*** (15.24)	4.227*** (15.21)	6.041*** (17.95)
septnov	-5.055*** (-11.47)	-5.069*** (-11.50)	-5.189*** (-11.79)	-5.079*** (-14.45)	-5.098*** (-14.50)	-5.146*** (-14.65)	-7.531*** (-21.75)	-7.442*** (-21.32)	-6.659*** (-17.19)
hurricane	-2.969** (-2.95)								
econcrisis	-3.647** (-3.04)	-5.033*** (-4.55)							
diesel	-3.306*** (-9.33)	-3.349*** (-9.46)	-3.415*** (-9.65)	-3.445*** (-9.94)	-2.732*** (-8.09)	-2.580*** (-7.73)	-10.50*** (-41.39)	-10.47*** (-40.93)	-7.999*** (-31.83)
gulf	0.150*** (8.89)	0.153*** (9.03)	0.156*** (9.23)	0.156*** (9.25)					
illriver	-0.0603*** (-54.53)	-0.0602*** (-54.49)	-0.0606*** (-54.93)	-0.0605*** (-56.76)	-0.0625*** (-59.98)	-0.0636*** (-65.00)	-0.0579*** (-59.81)	-0.0588*** (-60.24)	-0.0581*** (-59.17)
pnw	-0.564*** (-21.51)	-0.568*** (-21.66)	-0.572*** (-21.82)	-0.572*** (-21.82)	-0.346*** (-35.91)	-0.349*** (-36.34)			
secunit	-0.00309*** (-5.09)	-0.00339*** (-5.64)	-0.00317*** (-5.30)	-0.00317*** (-5.31)	-0.00165** (-2.87)				
matunit	0.0326*** (41.54)	0.0326*** (41.58)	0.0324*** (41.36)	0.0324*** (41.58)	0.0321*** (41.29)	0.0321*** (41.23)	0.0439*** (61.81)	0.0466*** (65.24)	0.0204*** (50.97)
matshuttle	-0.0281*** (-38.27)	-0.0280*** (-38.20)	-0.0275*** (-37.94)	-0.0275*** (-37.95)	-0.0284*** (-39.39)	-0.0285*** (-39.67)	-0.0298*** (-41.39)	-0.0317*** (-43.78)	
disrup2	2.255*** (7.43)	2.252*** (7.42)	2.254*** (7.43)	2.266*** (7.51)	2.454*** (8.15)	2.462*** (8.17)	1.366*** (4.54)	1.389*** (4.58)	-1.635*** (-4.59)
disrup1									4.608*** (12.24)
_cons	5.429*** (4.35)	5.226*** (4.19)	4.825*** (3.88)	4.627*** (4.02)	6.036*** (5.29)	6.393*** (5.64)	-6.012*** (-5.54)	-1.055 (-0.97)	-35.43*** (-43.77)
N	189664	189664	189664	189664	189664	189664	189664	189664	189664
R-sq	0.134	0.134	0.134	0.134	0.134	0.134	0.128	0.114	0.105

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000115*** (-3.91)	-0.00000115*** (-3.91)	-0.00000118*** (-4.00)	-0.00000119*** (-4.11)	-0.00000108*** (-3.80)	-0.00000102*** (-3.62)	-0.00000102*** (-5.77)	-0.00000161***	
chgbasis	0.499*** (10.54)	0.499*** (10.55)	0.499*** (10.55)	0.499*** (10.55)	0.499*** (10.54)	0.498*** (10.52)	0.501*** (10.50)	0.502*** (10.49)	0.500*** (10.48)
cumcapet~1	0.00105 (0.86)	0.00105 (0.87)	0.00129 (1.07)	0.00121 (1.02)	0.000557 (0.49)	0.000568 (0.50)	-0.00469*** (-4.57)	-0.00109 (-1.34)	-0.00162* (-2.42)
exports	0.0000117*** (3.42)	0.0000117*** (3.42)	0.0000119*** (3.47)	0.0000119*** (3.46)	0.0000134*** (4.00)	0.0000133*** (3.98)	0.00000853* (2.56)	0.0000126*** (3.86)	0.0000103** (3.23)
janapril	-1.023 (-0.36)	-1.024 (-0.36)	-1.041 (-0.36)						
mayaug	-4.223 (-1.30)	-4.209 (-1.30)	-4.258 (-1.31)	-3.353 (-1.62)	-3.650 (-1.77)	-3.379 (-1.64)	-2.771 (-1.33)	-2.033 (-0.98)	7.183** (2.88)
septnov	-1.359 (-0.40)	-1.360 (-0.40)	-0.854 (-0.25)	-0.110 (-0.04)	-0.181 (-0.07)	0.386 (0.15)	-4.585 (-1.76)	-3.904 (-1.50)	4.398 (1.52)
hurricane	0.998 (0.14)								
econcrisis	18.87* (2.05)	19.37* (2.29)							
diesel	17.41*** (6.15)	17.44*** (6.17)	17.73*** (6.28)	17.49*** (6.37)	16.11*** (6.08)	15.92*** (6.01)	-2.947 (-1.52)	-3.043 (-1.56)	-1.787 (-0.93)
gulf	-0.240 (-1.76)	-0.241 (-1.77)	-0.261 (-1.93)	-0.260 (-1.91)					
illriver	-0.0703*** (-7.95)	-0.0703*** (-7.95)	-0.0695*** (-7.87)	-0.0688*** (-7.99)	-0.0636*** (-7.78)	-0.0597*** (-7.63)	-0.0439*** (-5.68)	-0.0340*** (-4.50)	-0.0374*** (-4.95)
pnw	-0.471* (-2.16)	-0.471* (-2.16)	-0.439* (-2.02)	-0.438* (-2.01)	-0.825*** (-10.39)	-0.825*** (-10.39)			
secunit	0.0106* (2.28)	0.0107* (2.32)	0.0102* (2.20)	0.0102* (2.21)	0.00712 (1.64)				
matunit	0.00364 (0.50)	0.00360 (0.49)	0.00500 (0.68)	0.00548 (0.76)	0.00451 (0.63)	0.00315 (0.44)	0.0363*** (5.64)	0.0153** (2.87)	0.00754* (2.23)
matshuttle	-0.0148** (-2.66)	-0.0148** (-2.66)	-0.0170** (-3.10)	-0.0169** (-3.09)	-0.0143** (-2.71)	-0.0136* (-2.57)	-0.0108* (-2.03)	-0.00822 (-1.55)	
disrup2	10.06*** (4.33)	10.06*** (4.33)	10.12*** (4.35)	10.19*** (4.39)	9.970*** (4.30)	10.13*** (4.37)	7.101** (3.07)	7.390** (3.18)	-2.538 (-0.93)
disrup1									19.18*** (6.60)
_cons	-15.50 (-1.44)	-15.41 (-1.44)	-13.80 (-1.29)	-15.36 (-1.56)	-19.06* (-1.98)	-18.87 (-1.96)	-66.96*** (-7.87)	-49.16*** (-6.18)	-63.54*** (-10.40)
N	6664	6664	6664	6664	6664	6664	6664	6664	6664
R-sq	0.055	0.055	0.054	0.054	0.053	0.053	0.038	0.033	0.039

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000196*** (16.09)	0.000000197*** (16.11)	0.000000196*** (16.06)	0.000000196*** (16.08)	0.000000217*** (17.81)	0.000000201*** (16.69)	0.000000196*** (16.24)		
chgbasis	0.502*** (26.72)	0.502*** (26.74)	0.503*** (26.77)	0.503*** (26.76)	0.502*** (26.63)	0.503*** (26.70)	0.503*** (26.65)	0.503*** (26.59)	0.505*** (26.66)
cumcapet~1	-0.00523*** (-20.41)	-0.00527*** (-20.57)	-0.00549*** (-21.63)	-0.00554*** (-22.02)	-0.00365*** (-15.82)	-0.00331*** (-14.54)	-0.00411*** (-19.20)	-0.00299*** (-14.73)	-0.00445*** (-26.94)
exports	-0.000000726 (-0.91)	-0.000000601 (-0.76)	-0.000000678 (-0.85)	-0.000000673 (-0.85)	-0.000000673 (-3.88)	-0.00000305*** (-3.42)	-0.00000269*** (-4.72)	-0.00000368*** (-6.51)	-0.00000506*** (-8.83)
janapril	-1.225 (-1.77)	-1.222 (-1.76)	-1.202 (-1.74)						
mayaug	-0.857 (-1.09)	-0.966 (-1.23)	-0.920 (-1.17)	0.116 (0.23)	0.751 (1.47)	0.396 (0.78)	0.572 (1.12)	0.695 (1.36)	3.173*** (5.11)
septnov	-5.198*** (-6.31)	-5.227*** (-6.34)	-5.582*** (-6.79)	-4.717*** (-7.21)	-4.802*** (-7.32)	-5.260*** (-8.04)	-6.481*** (-10.07)	-5.703*** (-8.86)	-3.857*** (-5.36)
hurricane	-8.183*** (-5.15)								
econcrisis	-7.662*** (-3.88)	-11.09*** (-5.96)							
diesel	4.903*** (7.45)	4.703*** (7.16)	4.439*** (6.77)	4.220*** (6.56)	7.830*** (12.72)	8.454*** (13.82)	4.475*** (9.58)	4.431*** (9.46)	5.443*** (11.70)
gulf	0.552*** (17.92)	0.560*** (18.18)	0.570*** (18.55)	0.571*** (18.58)					
illriver	-0.0631*** (-29.83)	-0.0629*** (-29.71)	-0.0638*** (-30.23)	-0.0630*** (-30.66)	-0.0726*** (-36.40)	-0.0787*** (-42.04)	-0.0749*** (-40.81)	-0.0786*** (-43.08)	-0.0803*** (-43.93)
pnw	-0.953*** (-20.39)	-0.962*** (-20.59)	-0.973*** (-20.84)	-0.971*** (-20.80)	-0.163*** (-9.56)	-0.171*** (-10.07)			
secunit	-0.0152*** (-13.33)	-0.0161*** (-14.36)	-0.0155*** (-13.88)	-0.0155*** (-13.89)	-0.00948*** (-8.83)				
matunit	0.0127*** (8.96)	0.0129*** (9.12)	0.0122*** (8.64)	0.0124*** (8.82)	0.0110*** (7.83)	0.0114*** (8.09)	0.0164*** (12.48)	0.0189*** (14.42)	0.00554*** (6.81)
matshuttle	-0.00888*** (-6.15)	-0.00875*** (-6.06)	-0.00712*** (-5.02)	-0.00698*** (-4.93)	-0.0123*** (-8.81)	-0.0135*** (-9.74)	-0.0124*** (-8.96)	-0.0171*** (-12.58)	
disrup2	1.939*** (3.46)	1.930*** (3.44)	1.917*** (3.42)	1.966*** (3.51)	2.674*** (4.77)	2.651*** (4.73)	1.923*** (3.45)	2.465*** (4.43)	-0.130 (-0.20)
disrup1									4.872*** (6.96)
_cons	-4.077 (-1.59)	-4.733 (-1.85)	-6.458* (-2.54)	-8.083*** (-3.42)	2.895 (1.26)	4.929* (2.16)	-3.720 (-1.76)	7.954*** (3.98)	-10.70*** (-7.24)
N	56512	56512	56512	56512	56512	56512	56512	56512	56512
R-sq	0.135	0.134	0.134	0.134	0.128	0.127	0.126	0.121	0.120

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000419*** (26.48)	0.000000419*** (26.48)	0.000000416*** (26.33)	0.000000416*** (26.33)	0.000000426*** (26.92)	0.000000401*** (25.38)	0.000000405*** (25.62)		
chgbasis	0.482*** (40.10)	0.482*** (40.10)	0.481*** (40.01)	0.481*** (40.01)	0.482*** (39.99)	0.485*** (40.13)	0.485*** (40.15)	0.486*** (40.02)	0.488*** (40.04)
cumcapet~1	-0.0103*** (-57.98)	-0.0103*** (-58.01)	-0.0102*** (-57.87)	-0.0102*** (-58.47)	-0.00889*** (-55.22)	-0.00838*** (-52.74)	-0.00872*** (-58.30)	-0.00759*** (-52.87)	-0.00974*** (-84.57)
exports	-0.0000115*** (-21.44)	-0.0000115*** (-21.46)	-0.0000115*** (-21.38)	-0.0000115*** (-21.38)	-0.0000128*** (-24.04)	-0.0000124*** (-23.22)	-0.0000128*** (-24.21)	-0.0000132*** (-24.83)	-0.0000147*** (-27.73)
janapril	0.0451 (0.09)	0.0452 (0.09)	0.0362 (0.07)						
mayaug	10.05*** (18.29)	10.06*** (18.30)	10.04*** (18.26)	10.01*** (28.53)	10.50*** (29.96)	10.02*** (28.61)	10.07*** (28.73)	10.25*** (29.15)	9.517*** (22.25)
septnov	-0.222 (-0.38)	-0.221 (-0.38)	-0.0152 (-0.03)	-0.0416 (-0.09)	-0.111 (-0.24)	-0.553 (-1.21)	-1.146* (-2.56)	-0.595 (-1.32)	-1.969*** (-3.94)
hurricane	0.278 (0.24)								
econcrisis	6.775*** (4.63)	6.893*** (4.99)							
diesel	-12.75*** (-27.53)	-12.74*** (-27.57)	-12.59*** (-27.30)	-12.58*** (-27.85)	-10.45*** (-23.81)	-9.044*** (-20.87)	-10.80*** (-32.39)	-11.17*** (-33.40)	-10.26*** (-30.73)
gulf	0.413*** (19.38)	0.413*** (19.40)	0.408*** (19.20)	0.408*** (19.20)					
illriver	-0.0783*** (-53.92)	-0.0783*** (-53.93)	-0.0778*** (-53.71)	-0.0779*** (-55.55)	-0.0843*** (-61.74)	-0.0937*** (-73.73)	-0.0922*** (-73.79)	-0.0938*** (-74.82)	-0.0936*** (-74.28)
pnw	-0.633*** (-19.53)	-0.633*** (-19.54)	-0.628*** (-19.41)	-0.628*** (-19.41)	-0.0516*** (-4.27)	-0.0763*** (-6.33)			
secunit	-0.0179*** (-22.42)	-0.0178*** (-22.76)	-0.0182*** (-23.26)	-0.0181*** (-23.27)	-0.0139*** (-18.56)				
matunit	0.0572*** (58.43)	0.0572*** (58.45)	0.0576*** (58.98)	0.0576*** (59.25)	0.0575*** (58.98)	0.0569*** (58.30)	0.0592*** (65.18)	0.0582*** (63.95)	0.0406*** (71.52)
matshuttle	-0.0161*** (-16.20)	-0.0161*** (-16.21)	-0.0170*** (-17.37)	-0.0170*** (-17.41)	-0.0209*** (-21.82)	-0.0223*** (-23.29)	-0.0219*** (-22.90)	-0.0238*** (-24.84)	
disrup2	-3.062*** (-7.84)	-3.062*** (-7.84)	-3.053*** (-7.82)	-3.056*** (-7.85)	-2.525*** (-6.49)	-2.415*** (-6.19)	-2.728*** (-7.05)	-2.342*** (-6.03)	-2.333*** (-5.12)
disrup1									-1.135* (-2.34)
_cons	-27.55*** (-14.72)	-27.52*** (-14.73)	-26.48*** (-14.26)	-26.43*** (-15.30)	-19.44*** (-11.49)	-15.53*** (-9.23)	-19.40*** (-12.37)	-1.486 (-1.05)	-25.59*** (-25.02)
N	80190	80190	80190	80190	80190	80190	80190	80190	80190
R-sq	0.301	0.301	0.301	0.301	0.298	0.295	0.295	0.289	0.283

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000137*** (39.79)	0.000000136*** (39.73)	0.000000136*** (39.66)	0.000000136*** (39.66)	0.000000141*** (41.10)	0.000000140*** (40.84)	0.000000140*** (39.05)	0.000000134***	
chgbasis	0.497*** (51.43)	0.498*** (51.51)	0.498*** (51.57)	0.498*** (51.56)	0.498*** (51.46)	0.499*** (51.55)	0.499*** (51.40)	0.498*** (51.19)	0.503*** (51.51)
cumcapet~1	-0.00238*** (-27.69)	-0.00241*** (-28.00)	-0.00251*** (-29.33)	-0.00254*** (-29.80)	-0.00202*** (-24.98)	-0.00188*** (-23.43)	-0.00263*** (-33.99)	-0.00223*** (-28.99)	-0.00368*** (-53.95)
exports	-0.000000607 (-1.56)	-0.000000471 (-1.21)	-0.000000618 (-1.59)	-0.000000628 (-1.61)	-0.000000628 (-4.18)	-0.00000161*** (-3.20)	-0.00000123** (-8.68)	-0.00000331*** (-10.02)	-0.00000383*** (-19.99)
janapril	-1.302*** (-3.76)	-1.313*** (-3.79)	-1.324*** (-3.82)						
mayaug	0.422 (1.07)	0.314 (0.80)	0.329 (0.83)	1.469*** (5.67)	1.842*** (7.12)	1.551*** (6.01)	1.747*** (6.75)	1.745*** (6.73)	4.924*** (15.62)
septnov	-4.844*** (-11.70)	-4.881*** (-11.78)	-5.194*** (-12.56)	-4.230*** (-12.91)	-4.466*** (-13.63)	-4.803*** (-14.69)	-6.817*** (-21.13)	-6.464*** (-19.98)	-3.998*** (-11.09)
hurricane	-8.930*** (-10.87)								
econcrisis	-7.272*** (-7.05)	-11.30*** (-11.75)							
diesel	8.188*** (25.86)	7.991*** (25.27)	7.868*** (24.89)	7.659*** (24.60)	9.034*** (29.80)	9.593*** (31.88)	3.039*** (12.92)	3.366*** (14.27)	5.781*** (25.11)
gulf	0.269*** (18.21)	0.277*** (18.79)	0.281*** (19.06)	0.281*** (19.08)					
illriver	-0.0749*** (-72.55)	-0.0747*** (-72.36)	-0.0757*** (-73.64)	-0.0749*** (-74.73)	-0.0790*** (-80.78)	-0.0839*** (-91.24)	-0.0783*** (-86.27)	-0.0802*** (-88.21)	-0.0827*** (-90.76)
pnw	-0.675*** (-29.53)	-0.686*** (-30.03)	-0.690*** (-30.20)	-0.687*** (-30.09)	-0.281*** (-33.81)	-0.289*** (-34.81)			
secunit	-0.0102*** (-18.00)	-0.0112*** (-20.25)	-0.0106*** (-19.17)	-0.0106*** (-19.17)	-0.00787*** (-14.74)				
matunit	0.0170*** (23.60)	0.0173*** (23.94)	0.0165*** (23.00)	0.0168*** (23.38)	0.0160*** (22.37)	0.0160*** (22.37)	0.0253*** (37.87)	0.0281*** (42.31)	0.00465*** (13.22)
matshuttle	-0.0214*** (-33.26)	-0.0213*** (-33.12)	-0.0202*** (-31.68)	-0.0201*** (-31.62)	-0.0209*** (-32.94)	-0.0213*** (-33.58)	-0.0222*** (-34.93)	-0.0259*** (-40.97)	
disrup2	2.772*** (9.80)	2.772*** (9.80)	2.788*** (9.85)	2.874*** (10.19)	3.120*** (11.06)	3.087*** (10.94)	2.062*** (7.33)	2.402*** (8.51)	-0.953** (-2.89)
disrup1									6.436*** (18.30)
_cons	9.209*** (8.84)	8.647*** (8.31)	7.814*** (7.52)	6.254*** (6.54)	8.369*** (8.81)	8.875*** (9.35)	-1.086 (-1.20)	6.234*** (7.00)	-18.46*** (-25.78)
N	239668	239668	239668	239668	239668	239668	239668	239668	239668
R-sq	0.131	0.130	0.130	0.130	0.128	0.128	0.123	0.118	0.113

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000332*** (-28.08)	-0.000000333*** (-28.15)	-0.000000332*** (-28.04)	-0.000000333*** (-28.15)	-0.000000328*** (-27.80)	-0.000000328*** (-27.73)	-0.000000328*** (-28.34)	-0.000000335***	
chgbasis	0.495*** (47.77)	0.495*** (47.80)	0.495*** (47.84)	0.495*** (47.78)	0.495*** (47.78)	0.496*** (47.86)	0.496*** (47.82)	0.496*** (47.72)	0.500*** (47.74)
cumcapet~1	-0.00250*** (-25.15)	-0.00250*** (-25.22)	-0.00259*** (-26.21)	-0.00269*** (-27.32)	-0.00252*** (-26.74)	-0.00241*** (-25.82)	-0.00277*** (-30.44)	-0.00313*** (-34.60)	-0.00537*** (-68.09)
exports	-0.00000563*** (-12.70)	-0.00000558*** (-12.60)	-0.00000572*** (-12.90)	-0.00000574*** (-12.95)	-0.00000601*** (-13.63)	-0.00000593*** (-13.46)	-0.00000593*** (-16.00)	-0.00000699*** (-15.74)	-0.00000689*** (-25.86)
janapril	-3.635*** (-8.93)	-3.635*** (-8.93)	-3.642*** (-8.94)						
mayaug	2.837*** (6.05)	2.800*** (5.98)	2.809*** (5.99)	6.020*** (19.96)	6.147*** (20.43)	6.007*** (19.99)	6.086*** (20.24)	5.998*** (19.89)	7.218*** (19.74)
septnov	-3.347*** (-6.85)	-3.360*** (-6.88)	-3.613*** (-7.41)	-0.911* (-2.38)	-0.992** (-2.59)	-1.146** (-3.00)	-2.211*** (-5.86)	-2.473*** (-6.54)	-1.920*** (-4.54)
hurricane	-3.687*** (-3.38)								
econcrisis	-10.82*** (-7.98)	-12.48*** (-9.88)							
diesel	0.291 (0.77)	0.216 (0.57)	0.118 (0.31)	-0.471 (-1.27)	-0.0982 (-0.27)	0.405 (1.12)	-3.220*** (-11.19)	-3.364*** (-11.67)	-0.0191 (-0.07)
gulf	0.0969*** (5.27)	0.0999*** (5.44)	0.104*** (5.67)	0.109*** (5.93)					
illriver	-0.0847*** (-69.94)	-0.0847*** (-69.89)	-0.0856*** (-70.90)	-0.0829*** (-70.89)	-0.0842*** (-73.29)	-0.0877*** (-81.42)	-0.0848*** (-79.71)	-0.0836*** (-78.49)	-0.0860*** (-80.04)
pnw	-0.317*** (-10.96)	-0.321*** (-11.10)	-0.327*** (-11.32)	-0.325*** (-11.24)	-0.165*** (-15.81)	-0.173*** (-16.60)			
secunit	-0.00644*** (-9.71)	-0.00679*** (-10.38)	-0.00622*** (-9.54)	-0.00630*** (-9.66)	-0.00533*** (-8.44)				
matunit	0.0481*** (56.95)	0.0482*** (57.09)	0.0476*** (56.48)	0.0481*** (57.21)	0.0479*** (57.03)	0.0477*** (56.75)	0.0530*** (68.30)	0.0512*** (65.97)	0.0182*** (43.96)
matshuttle	-0.0392*** (-51.81)	-0.0392*** (-51.77)	-0.0381*** (-50.88)	-0.0379*** (-50.58)	-0.0381*** (-50.91)	-0.0383*** (-51.25)	-0.0391*** (-52.37)	-0.0372*** (-49.88)	
disrup2	0.743* (2.25)	0.739* (2.24)	0.765* (2.32)	1.112*** (3.39)	1.170*** (3.57)	1.196*** (3.65)	0.702* (2.15)	0.406 (1.24)	-1.490*** (-3.82)
disrup1									3.165*** (7.61)
_cons	30.24*** (24.13)	30.05*** (23.99)	29.34*** (23.46)	24.79*** (21.69)	25.22*** (22.11)	25.89*** (22.75)	20.05*** (18.51)	12.74*** (12.08)	-22.00*** (-26.47)
N	149862	149862	149862	149862	149862	149862	149862	149862	149862
R-sq	0.177	0.177	0.176	0.176	0.176	0.175	0.174	0.169	0.156



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000604*** (-9.54)	-0.00000605*** (-9.55)	-0.00000577*** (-9.08)	-0.00000579*** (-9.11)	-0.00000546*** (-8.57)	-0.00000538*** (-8.44)	-0.00000538*** (-8.62)	-0.00000548*** (-8.62)	-0.00000548*** (-8.62)
chgbasis	0.476*** (19.80)	0.475*** (19.78)	0.489*** (20.28)	0.489*** (20.29)	0.492*** (20.35)	0.493*** (20.33)	0.493*** (20.37)	0.494*** (20.39)	0.493*** (19.99)
cumcapet~1	-0.0176*** (-59.39)	-0.0176*** (-59.36)	-0.0184*** (-62.79)	-0.0185*** (-63.65)	-0.0208*** (-80.13)	-0.0212*** (-82.64)	-0.0214*** (-89.07)	-0.0215*** (-89.58)	-0.0160*** (-80.99)
exports	0.00000683*** (7.29)	0.00000680*** (7.27)	0.00000651*** (6.93)	0.00000653*** (6.95)	0.00000899*** (9.66)	0.00000865*** (9.28)	0.00000847*** (9.15)	0.00000888*** (9.58)	0.0000133*** (14.23)
janapril	-1.935* (-2.36)	-1.935* (-2.36)	-1.902* (-2.31)						
mayaug	-6.346*** (-6.79)	-6.318*** (-6.77)	-6.232*** (-6.65)	-4.580*** (-7.55)	-5.512*** (-9.10)	-4.963*** (-8.20)	-4.955*** (-8.19)	-5.039*** (-8.32)	-1.923** (-2.60)
septnov	-9.768*** (-9.99)	-9.747*** (-9.97)	-11.12*** (-11.37)	-9.747*** (-12.55)	-10.04*** (-12.88)	-9.302*** (-11.96)	-9.549*** (-12.48)	-9.921*** (-12.98)	-5.517*** (-6.43)
hurricane	3.887 (1.77)								
econcrisis	-39.61*** (-17.27)	-37.97*** (-18.10)							
diesel	-16.51*** (-20.59)	-16.46*** (-20.54)	-17.49*** (-21.79)	-17.88*** (-22.79)	-21.44*** (-28.31)	-22.60*** (-30.05)	-23.50*** (-42.38)	-23.56*** (-42.47)	-26.49*** (-47.34)
gulf	-0.692*** (-18.08)	-0.695*** (-18.16)	-0.638*** (-16.65)	-0.634*** (-16.57)					
illriver	-0.109*** (-44.34)	-0.109*** (-44.38)	-0.112*** (-45.39)	-0.111*** (-46.37)	-0.100*** (-43.43)	-0.0924*** (-41.73)	-0.0916*** (-42.21)	-0.0894*** (-41.44)	-0.0915*** (-41.60)
pnw	0.930*** (15.56)	0.934*** (15.64)	0.860*** (14.37)	0.861*** (14.39)	-0.0614** (-2.79)	-0.0386 (-1.75)			
secunit	0.0203*** (14.66)	0.0206*** (15.07)	0.0224*** (16.33)	0.0223*** (16.28)	0.0155*** (11.80)				
matunit	0.0346*** (20.05)	0.0346*** (20.04)	0.0320*** (18.49)	0.0324*** (18.85)	0.0330*** (19.13)	0.0327*** (18.97)	0.0340*** (21.55)	0.0324*** (20.69)	0.0798*** (81.48)
matshuttle	0.0464*** (27.07)	0.0463*** (27.03)	0.0523*** (31.03)	0.0525*** (31.15)	0.0591*** (35.94)	0.0610*** (37.25)	0.0611*** (37.32)	0.0627*** (38.51)	
disrup2	7.109*** (10.71)	7.113*** (10.72)	7.065*** (10.60)	7.187*** (10.82)	6.318*** (9.51)	6.370*** (9.57)	6.235*** (9.43)	6.029*** (9.12)	4.892*** (6.19)
disrup1									5.332*** (6.38)
_cons	-87.83*** (-29.30)	-87.64*** (-29.26)	-93.84*** (-31.41)	-96.39*** (-34.71)	-108.4*** (-40.29)	-112.0*** (-41.81)	-113.7*** (-45.73)	-117.4*** (-47.90)	-53.95*** (-29.56)
N	40613	40613	40613	40613	40613	40613	40613	40613	40613
R-sq	0.310	0.309	0.304	0.304	0.299	0.297	0.297	0.295	0.270

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000527*** (5.30)	0.00000517*** (5.20)	0.00000517*** (5.20)	0.00000619*** (7.11)	0.00000213* (2.52)	0.000000973 (1.33)	0.00000129 (1.82)		
chgbasis	0.502*** (11.78)	0.508*** (11.95)	0.508*** (11.95)	0.509*** (11.96)	0.518*** (11.81)	0.522*** (11.89)	0.521*** (11.86)	0.522*** (11.89)	0.527*** (11.57)
cumcapet~1	-0.0110*** (-9.99)	-0.0112*** (-10.17)	-0.0112*** (-10.17)	-0.0105*** (-9.97)	-0.0146*** (-13.87)	-0.0152*** (-14.80)	-0.0140*** (-18.65)	-0.0147*** (-22.71)	-0.0128*** (-19.42)
exports	-0.00000450* (-2.14)	-0.00000399 (-1.92)	-0.00000399 (-1.92)	-0.00000351 (-1.69)	-0.00000109 (-0.51)	-0.000000734 (-0.34)	0.000000128 (0.06)	0.000000128 (-0.21)	-0.000000428 (-3.79)
janapril	-3.490* (-1.99)	-3.682* (-2.10)	-3.682* (-2.10)						
mayaug	6.040*** (3.48)	5.783*** (3.34)	5.783*** (3.34)	8.694*** (8.40)	10.32*** (9.73)	10.79*** (10.31)	10.29*** (10.23)	10.53*** (10.55)	7.935*** (6.51)
septnov	-10.83*** (-6.30)	-10.84*** (-6.30)	-10.84*** (-6.30)	-8.560*** (-6.42)	-6.355*** (-4.66)	-6.407*** (-4.69)	-6.342*** (-4.64)	-5.634*** (-4.30)	-6.418*** (-4.33)
hurricane	-5.697* (-2.04)								
o.econcr~s	0 (.)	0 (.)							
diesel	-29.55*** (-13.38)	-29.54*** (-13.37)	-29.54*** (-13.37)	-30.25*** (-13.84)	-36.66*** (-16.64)	-38.66*** (-18.61)	-39.20*** (-19.09)	-39.03*** (-19.02)	-35.91*** (-16.44)
gulf	-0.887*** (-13.40)	-0.876*** (-13.27)	-0.876*** (-13.27)	-0.905*** (-14.02)					
illriver	-0.0160** (-2.91)	-0.0161** (-2.92)	-0.0161** (-2.92)	-0.0146** (-2.67)	-0.00534 (-0.96)	-0.0135** (-2.86)	-0.0131** (-2.79)	-0.0129** (-2.75)	0.000675 (0.14)
pnw	1.212*** (12.66)	1.199*** (12.54)	1.199*** (12.54)	1.240*** (13.25)	0.0578 (1.38)	0.0715 (1.72)			
secunit	-0.00394 (-1.33)	-0.00490 (-1.68)	-0.00490 (-1.68)	-0.00493 (-1.69)	-0.00811** (-2.70)				
matunit	-0.0121 (-1.88)	-0.0127* (-1.97)	-0.0127* (-1.97)	-0.00916 (-1.47)	-0.0180** (-2.82)	-0.0198** (-3.12)	-0.0195** (-3.06)	-0.0227*** (-3.72)	0.0554*** (15.61)
matshuttle	0.0520*** (10.29)	0.0524*** (10.37)	0.0524*** (10.37)	0.0516*** (10.23)	0.0676*** (13.33)	0.0723*** (15.18)	0.0705*** (15.16)	0.0709*** (15.25)	
disrup2	0.270 (0.23)	0.364 (0.31)	0.364 (0.31)	0.00447 (0.00)	-2.172 (-1.82)	-2.814* (-2.40)	-2.879* (-2.46)	-2.687* (-2.30)	-4.494*** (-3.36)
disrup1									0.284 (0.20)
_cons	-117.5*** (-5.13)	-115.5*** (-5.05)	-115.5*** (-5.05)	-143.0*** (-7.62)	-84.37*** (-4.47)	-66.14*** (-3.75)	-68.24*** (-3.88)	-37.31*** (-8.06)	-9.457* (-2.14)
N	3098	3098	3098	3098	3098	3098	3098	3098	3098
R-sq	0.554	0.554	0.554	0.553	0.524	0.523	0.523	0.522	0.486

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.00000305*** (12.07)	0.00000306*** (12.11)	0.00000320*** (12.68)	0.00000320*** (12.68)	0.00000343*** (13.61)	0.00000356*** (14.36)	0.00000359*** (14.46)		
chgbasis	0.531*** (12.78)	0.532*** (12.81)	0.533*** (12.80)	0.533*** (12.81)	0.533*** (12.75)	0.531*** (12.70)	0.533*** (12.74)	0.530*** (12.51)	0.531*** (12.46)
cumcapet~1	-0.0120*** (-20.90)	-0.0120*** (-20.98)	-0.0125*** (-21.94)	-0.0126*** (-22.18)	-0.0145*** (-27.75)	-0.0145*** (-27.74)	-0.0150*** (-31.35)	-0.0164*** (-34.63)	-0.0140*** (-34.60)
exports	-0.00000706*** (-3.78)	-0.00000667*** (-3.58)	-0.00000665*** (-3.56)	-0.00000663*** (-3.55)	-0.00000375* (-2.03)	-0.00000446* (-2.43)	-0.00000503** (-2.78)	-0.00000679*** (-3.72)	-0.00000429* (-2.34)
janapril	-1.654 (-1.06)	-1.634 (-1.05)	-1.696 (-1.09)						
mayaug	7.335*** (4.25)	7.125*** (4.13)	7.218*** (4.17)	8.678*** (7.95)	8.079*** (7.38)	8.349*** (7.66)	8.549*** (7.87)	8.924*** (8.12)	8.351*** (6.22)
septnov	-9.096*** (-4.99)	-9.019*** (-4.95)	-9.907*** (-5.44)	-8.699*** (-6.03)	-8.717*** (-6.01)	-8.009*** (-5.60)	-8.458*** (-5.99)	-7.640*** (-5.35)	-7.746*** (-4.87)
hurricane	-9.654** (-2.95)								
econcrisis	-25.16*** (-5.07)	-29.82*** (-6.34)							
diesel	-20.37*** (-13.27)	-20.69*** (-13.51)	-21.03*** (-13.71)	-21.39*** (-14.26)	-23.92*** (-16.18)	-23.79*** (-16.09)	-25.42*** (-20.85)	-31.08*** (-26.59)	-32.20*** (-27.39)
gulf	-0.628*** (-9.18)	-0.620*** (-9.06)	-0.597*** (-8.72)	-0.599*** (-8.75)					
illriver	-0.0867*** (-17.91)	-0.0864*** (-17.85)	-0.0887*** (-18.33)	-0.0875*** (-18.60)	-0.0764*** (-16.79)	-0.0725*** (-16.68)	-0.0702*** (-16.77)	-0.0768*** (-18.21)	-0.0699*** (-16.72)
pnw	0.813*** (7.67)	0.806*** (7.60)	0.782*** (7.35)	0.791*** (7.47)	-0.0722 (-1.87)	-0.0751 (-1.94)			
secunit	0.0148*** (5.66)	0.0136*** (5.28)	0.0149*** (5.75)	0.0150*** (5.79)	0.00701** (2.89)				
matunit	0.0599*** (18.45)	0.0605*** (18.66)	0.0582*** (18.03)	0.0586*** (18.26)	0.0582*** (18.05)	0.0578*** (17.94)	0.0594*** (19.14)	0.0579*** (18.43)	0.0805*** (38.99)
matshuttle	0.00741* (2.23)	0.00734* (2.21)	0.0114*** (3.48)	0.0115*** (3.52)	0.0177*** (5.52)	0.0174*** (5.42)	0.0184*** (5.86)	0.0292*** (9.42)	
disrup2	-0.0843 (-0.07)	-0.0958 (-0.08)	-0.0817 (-0.07)	-0.0782 (-0.06)	-0.743 (-0.61)	-0.493 (-0.40)	-0.899 (-0.74)	-2.053 (-1.68)	-2.286 (-1.59)
disrup1									0.270 (0.18)
_cons	-53.59*** (-9.40)	-54.60*** (-9.59)	-59.26*** (-10.47)	-61.58*** (-11.74)	-75.45*** (-15.02)	-74.59*** (-14.87)	-79.21*** (-17.94)	-72.90*** (-16.38)	-45.76*** (-13.41)
N	8082	8082	8082	8082	8082	8082	8082	8082	8082
R-sq	0.366	0.366	0.363	0.362	0.356	0.356	0.355	0.339	0.331

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.000000456*** (-6.39)	-0.000000456*** (-6.39)	-0.000000462*** (-6.47)	-0.000000461*** (-6.46)	-0.000000461*** (-6.45)	-0.000000461*** (-6.57)	-0.000000468*** (-7.12)	-0.000000506***	
chgbasis	0.456*** (17.63)	0.456*** (17.63)	0.457*** (17.65)	0.457*** (17.64)	0.457*** (17.65)	0.458*** (17.67)	0.456*** (17.58)	0.456*** (17.56)	0.457*** (17.60)
cumcapet~1	-0.00888*** (-25.06)	-0.00888*** (-25.06)	-0.00872*** (-24.86)	-0.00855*** (-24.85)	-0.00793*** (-25.38)	-0.00782*** (-25.71)	-0.00722*** (-24.47)	-0.00772*** (-26.94)	-0.00805*** (-35.19)
exports	-0.0000172*** (-17.18)	-0.0000172*** (-17.19)	-0.0000171*** (-17.12)	-0.0000171*** (-17.15)	-0.0000177*** (-17.81)	-0.0000178*** (-17.93)	-0.0000170*** (-17.22)	-0.0000174*** (-17.64)	-0.0000174*** (-17.71)
janapril	2.303* (2.51)	2.305* (2.51)	2.255* (2.46)						
mayaug	25.09*** (23.66)	25.10*** (23.68)	25.09*** (23.66)	23.12*** (33.25)	23.47*** (33.98)	23.43*** (33.95)	23.52*** (34.03)	23.43*** (33.87)	21.66*** (26.19)
septnov	8.409*** (7.69)	8.423*** (7.70)	8.641*** (7.91)	7.040*** (8.03)	7.087*** (8.08)	7.092*** (8.09)	8.196*** (9.45)	8.099*** (9.33)	6.361*** (6.70)
hurricane	2.153 (0.78)								
econcrisis	6.740* (2.52)	7.653** (3.19)							
diesel	-30.52*** (-31.66)	-30.52*** (-31.66)	-30.31*** (-31.51)	-29.76*** (-31.81)	-28.75*** (-31.73)	-28.49*** (-32.07)	-23.43*** (-37.91)	-23.46*** (-37.92)	-23.33*** (-38.32)
gulf	0.234*** (4.83)	0.233*** (4.81)	0.218*** (4.51)	0.207*** (4.31)					
illriver	-0.0632*** (-22.31)	-0.0633*** (-22.33)	-0.0628*** (-22.19)	-0.0648*** (-23.98)	-0.0672*** (-25.37)	-0.0685*** (-27.52)	-0.0708*** (-28.60)	-0.0710*** (-28.62)	-0.0698*** (-28.47)
pnw	-0.116 (-1.51)	-0.114 (-1.48)	-0.0922 (-1.21)	-0.0855 (-1.12)	0.222*** (8.04)	0.216*** (7.91)			
secunit	-0.00387* (-2.45)	-0.00371* (-2.37)	-0.00402* (-2.57)	-0.00386* (-2.47)	-0.00225 (-1.49)				
matunit	0.0606*** (29.22)	0.0607*** (29.24)	0.0610*** (29.46)	0.0606*** (29.36)	0.0600*** (29.13)	0.0599*** (29.10)	0.0515*** (29.16)	0.0528*** (30.05)	0.0504*** (48.56)
matshuttle	-0.00153 (-0.77)	-0.00159 (-0.80)	-0.00260 (-1.32)	-0.00303 (-1.55)	-0.00432* (-2.23)	-0.00469* (-2.44)	-0.00282 (-1.48)	-0.00343 (-1.80)	
disrup2	-2.992*** (-3.93)	-2.987*** (-3.93)	-2.979*** (-3.92)	-3.188*** (-4.22)	-2.997*** (-3.97)	-2.948*** (-3.91)	-2.565*** (-3.40)	-2.762*** (-3.66)	-1.274 (-1.45)
disrup1									-3.349*** (-3.59)
_cons	-53.98*** (-14.94)	-53.84*** (-14.92)	-52.78*** (-14.69)	-49.36*** (-14.90)	-47.22*** (-14.41)	-46.19*** (-14.42)	-39.23*** (-12.72)	-41.29*** (-13.43)	-43.94*** (-20.57)
N	21759	21759	21759	21759	21759	21759	21759	21759	21759
R-sq	0.336	0.336	0.336	0.336	0.335	0.335	0.333	0.332	0.332

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000554*** (14.95)	0.000000551*** (14.87)	0.000000557*** (15.04)	0.000000557*** (15.01)	0.000000565*** (15.30)	0.000000572*** (15.46)	0.000000569*** (15.40)		
chgbasis	0.450*** (15.92)	0.451*** (15.94)	0.450*** (15.91)	0.450*** (15.91)	0.450*** (15.88)	0.445*** (15.68)	0.446*** (15.71)	0.447*** (15.69)	0.447*** (15.69)
cumcapet~1	-0.00963*** (-29.43)	-0.00964*** (-29.46)	-0.0100*** (-30.94)	-0.00985*** (-30.75)	-0.0102*** (-35.24)	-0.0108*** (-38.13)	-0.0110*** (-39.67)	-0.0107*** (-38.59)	-0.0104*** (-46.02)
exports	-0.0000160*** (-15.35)	-0.0000160*** (-15.35)	-0.0000162*** (-15.52)	-0.0000161*** (-15.45)	-0.0000158*** (-15.28)	-0.0000154*** (-14.83)	-0.0000156*** (-15.16)	-0.0000154*** (-14.92)	-0.0000150*** (-14.61)
janapril	3.293*** (3.49)	3.283*** (3.48)	3.346*** (3.54)						
mayaug	23.04*** (21.07)	23.02*** (21.04)	23.02*** (21.02)	20.13*** (27.61)	19.93*** (27.51)	20.27*** (27.95)	20.23*** (27.91)	20.33*** (27.93)	17.73*** (20.21)
septnov	12.66*** (11.20)	12.63*** (11.17)	12.01*** (10.63)	9.650*** (10.57)	9.652*** (10.57)	9.807*** (10.73)	9.421*** (10.45)	9.369*** (10.35)	7.195*** (7.22)
hurricane	-6.331* (-2.19)								
econcrisis	-16.64*** (-6.25)	-19.16*** (-8.00)							
diesel	-19.23*** (-20.01)	-19.21*** (-20.00)	-19.76*** (-20.60)	-18.96*** (-20.34)	-19.53*** (-21.66)	-21.27*** (-24.00)	-22.84*** (-36.22)	-21.70*** (-34.51)	-21.97*** (-35.57)
gulf	-0.148** (-3.05)	-0.142** (-2.94)	-0.106* (-1.06)	-0.117* (-2.43)					
illriver	-0.0895*** (-31.25)	-0.0893*** (-31.21)	-0.0907*** (-31.71)	-0.0936*** (-34.17)	-0.0922*** (-34.42)	-0.0835*** (-32.94)	-0.0826*** (-32.90)	-0.0807*** (-32.04)	-0.0806*** (-32.23)
pnw	0.130 (1.69)	0.117 (1.54)	0.0678 (0.89)	0.0694 (0.91)	-0.104*** (-3.86)	-0.0675* (-2.53)			
secunit	0.0154*** (9.68)	0.0149*** (9.46)	0.0158*** (10.01)	0.0161*** (10.21)	0.0151*** (9.92)				
matunit	0.0519*** (24.95)	0.0517*** (24.88)	0.0508*** (24.45)	0.0500*** (24.20)	0.0503*** (24.41)	0.0509*** (24.67)	0.0534*** (29.74)	0.0493*** (27.65)	0.0517*** (50.17)
matshuttle	-0.00395* (-2.05)	-0.00374 (-1.95)	-0.00132 (-0.69)	-0.00156 (-0.82)	-0.000955 (-0.51)	0.00147 (0.79)	0.000891 (0.48)	0.00289 (1.56)	
disrup2	2.119** (2.68)	2.113** (2.67)	2.102** (2.65)	1.804* (2.29)	1.677* (2.13)	1.334 (1.69)	1.199 (1.53)	1.442 (1.83)	4.146*** (4.53)
disrup1									-5.276*** (-5.43)
_cons	-51.03*** (-15.03)	-51.19*** (-15.08)	-53.42*** (-15.77)	-49.05*** (-15.55)	-49.99*** (-15.97)	-56.40*** (-18.38)	-58.56*** (-19.86)	-51.98*** (-17.75)	-46.68*** (-21.22)
N	29194	29194	29194	29194	29194	29194	29194	29194	29194
R-sq	0.259	0.259	0.257	0.257	0.256	0.254	0.254	0.248	0.248

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000111*** (11.37)	0.000000111*** (11.37)	0.000000112*** (11.42)	0.000000112*** (11.48)	0.000000112*** (11.47)	0.000000130*** (13.26)	0.000000133*** (13.56)		
chgbasis	0.457*** (28.55)	0.457*** (28.55)	0.456*** (28.49)	0.456*** (28.49)	0.456*** (28.49)	0.450*** (28.02)	0.451*** (28.07)	0.451*** (28.04)	0.452*** (28.08)
cumcapet~1	-0.00784*** (-68.21)	-0.00784*** (-68.22)	-0.00797*** (-69.70)	-0.00794*** (-69.74)	-0.00793*** (-73.33)	-0.00826*** (-76.72)	-0.00843*** (-80.71)	-0.00847*** (-81.09)	-0.00886*** (-97.17)
exports	-0.0000158*** (-29.47)	-0.0000158*** (-29.48)	-0.0000160*** (-29.80)	-0.0000160*** (-29.77)	-0.0000160*** (-30.02)	-0.0000166*** (-31.03)	-0.0000171*** (-32.39)	-0.0000169*** (-32.02)	-0.0000173*** (-33.22)
janapril	1.510** (3.12)	1.510** (3.11)	1.491** (3.07)						
mayaug	18.37*** (33.14)	18.37*** (33.15)	18.37*** (33.13)	17.07*** (47.58)	17.08*** (47.76)	17.76*** (49.63)	17.79*** (49.69)	17.89*** (49.95)	15.36*** (35.67)
septnov	9.927*** (17.07)	9.926*** (17.07)	9.498*** (16.36)	8.406*** (18.31)	8.401*** (18.31)	9.267*** (20.18)	8.775*** (19.40)	8.731*** (19.28)	6.370*** (12.76)
hurricane	-0.140 (-0.11)								
econcrisis	-14.71*** (-10.28)	-14.77*** (-11.08)							
diesel	-17.44*** (-39.53)	-17.44*** (-39.58)	-17.59*** (-39.93)	-17.34*** (-40.05)	-17.31*** (-40.88)	-18.74*** (-44.50)	-20.41*** (-63.06)	-20.52*** (-63.34)	-20.11*** (-63.84)
gulf	0.00151 (0.07)	0.00161 (0.08)	0.00798 (0.38)	0.00747 (0.36)					
illriver	-0.0915*** (-63.24)	-0.0915*** (-63.25)	-0.0930*** (-64.50)	-0.0940*** (-67.13)	-0.0941*** (-68.60)	-0.0823*** (-63.37)	-0.0809*** (-63.22)	-0.0805*** (-62.85)	-0.0800*** (-62.42)
pnw	-0.0922** (-2.82)	-0.0923** (-2.82)	-0.0994** (-3.04)	-0.103** (-3.15)	-0.0920*** (-7.68)	-0.0743*** (-6.19)			
secunit	0.0187*** (23.46)	0.0187*** (23.75)	0.0195*** (24.97)	0.0195*** (24.97)	0.0196*** (25.91)				
matunit	0.0542*** (53.31)	0.0542*** (53.33)	0.0532*** (52.54)	0.0530*** (52.47)	0.0529*** (52.49)	0.0534*** (52.72)	0.0558*** (59.75)	0.0541*** (58.41)	0.0486*** (103.17)
matshuttle	-0.0104*** (-11.26)	-0.0104*** (-11.26)	-0.00883*** (-9.70)	-0.00888*** (-9.75)	-0.00890*** (-9.79)	-0.00815*** (-8.95)	-0.00855*** (-9.40)	-0.00653*** (-7.28)	
disrup2	1.195** (3.02)	1.195** (3.02)	1.229** (3.11)	1.109** (2.82)	1.115** (2.84)	1.168** (2.96)	0.926* (2.36)	0.978* (2.49)	3.411*** (7.40)
disrup1									-5.023*** (-10.35)
_cons	-35.76*** (-24.39)	-35.77*** (-24.43)	-36.91*** (-25.25)	-35.15*** (-26.15)	-35.10*** (-26.24)	-37.31*** (-27.85)	-39.73*** (-31.00)	-37.16*** (-29.29)	-41.38*** (-42.10)
N	94587	94587	94587	94587	94587	94587	94587	94587	94587
R-sq	0.291	0.291	0.290	0.290	0.290	0.285	0.285	0.284	0.284

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000288*** (13.54)	0.000000288*** (13.55)	0.000000285*** (13.39)	0.000000285*** (13.40)	0.000000281*** (13.28)	0.000000283*** (13.37)	0.000000279*** (13.16)		
chgbasis	0.454*** (16.29)	0.454*** (16.30)	0.452*** (16.23)	0.452*** (16.23)	0.452*** (16.23)	0.448*** (16.07)	0.451*** (16.14)	0.450*** (16.07)	0.451*** (16.09)
cumcapet~1	-0.00663*** (-20.31)	-0.00663*** (-20.32)	-0.00682*** (-21.09)	-0.00680*** (-21.25)	-0.00705*** (-24.01)	-0.00756*** (-26.30)	-0.00812*** (-29.27)	-0.00776*** (-28.00)	-0.00847*** (-38.40)
exports	-0.0000134*** (-12.60)	-0.0000133*** (-12.58)	-0.0000135*** (-12.72)	-0.0000135*** (-12.71)	-0.0000132*** (-12.57)	-0.0000130*** (-12.33)	-0.0000139*** (-13.34)	-0.0000136*** (-12.98)	-0.0000139*** (-13.36)
janapril	0.406 (0.41)	0.411 (0.42)	0.440 (0.45)						
mayaug	18.19*** (16.23)	18.18*** (16.22)	18.19*** (16.22)	17.80*** (24.88)	17.67*** (24.81)	18.13*** (25.49)	17.98*** (25.26)	18.13*** (25.39)	16.02*** (18.60)
septnov	7.043*** (6.07)	7.037*** (6.06)	6.663*** (5.75)	6.344*** (6.95)	6.339*** (6.94)	6.625*** (7.25)	5.371*** (5.98)	5.341*** (5.92)	3.196** (3.20)
hurricane	-2.969 (-1.12)								
econcrisis	-9.869*** (-3.59)	-11.17*** (-4.48)							
diesel	-17.14*** (-18.48)	-17.18*** (-18.54)	-17.43*** (-18.82)	-17.34*** (-19.13)	-17.86*** (-20.61)	-19.21*** (-22.54)	-23.66*** (-39.03)	-23.81*** (-39.16)	-23.43*** (-39.23)
gulf	-0.104* (-2.30)	-0.103* (-2.26)	-0.0860 (-1.90)	-0.0875 (-1.94)					
illriver	-0.0792*** (-27.28)	-0.0792*** (-27.27)	-0.0800*** (-27.57)	-0.0804*** (-28.97)	-0.0792*** (-29.23)	-0.0717*** (-28.07)	-0.0685*** (-27.18)	-0.0684*** (-27.02)	-0.0671*** (-26.55)
pnw	-0.0671 (-0.95)	-0.0696 (-0.99)	-0.0908 (-1.29)	-0.0899 (-1.28)	-0.216*** (-8.32)	-0.192*** (-7.43)			
secunit	0.0130*** (8.13)	0.0128*** (8.06)	0.0133*** (8.39)	0.0133*** (8.43)	0.0125*** (8.21)				
matunit	0.0488*** (24.55)	0.0488*** (24.57)	0.0481*** (24.28)	0.0480*** (24.31)	0.0483*** (24.54)	0.0487*** (24.68)	0.0549*** (30.81)	0.0539*** (30.16)	0.0480*** (47.14)
matshuttle	-0.0128*** (-6.61)	-0.0128*** (-6.59)	-0.0113*** (-5.91)	-0.0114*** (-5.96)	-0.0109*** (-5.75)	-0.00904*** (-4.81)	-0.00931*** (-4.95)	-0.00777*** (-4.12)	
disrup2	1.045 (1.33)	1.047 (1.33)	1.041 (1.32)	1.003 (1.28)	0.937 (1.20)	0.897 (1.14)	0.200 (0.26)	0.364 (0.47)	2.245* (2.44)
disrup1									-4.060*** (-4.16)
_cons	-13.44*** (-3.96)	-13.61*** (-4.01)	-15.03*** (-4.45)	-14.41*** (-4.68)	-15.44*** (-5.09)	-19.54*** (-6.52)	-27.30*** (-9.72)	-29.44*** (-10.46)	-35.91*** (-17.35)
N	24812	24812	24812	24812	24812	24812	24812	24812	24812
R-sq	0.261	0.261	0.260	0.260	0.260	0.258	0.257	0.251	0.251

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	0.000000138*** (10.37)	0.000000138*** (10.38)	0.000000140*** (10.47)	0.000000140*** (10.47)	0.000000146*** (10.93)	0.000000149*** (11.19)	0.000000148*** (11.13)		
chgbasis	0.440*** (21.67)	0.440*** (21.67)	0.440*** (21.63)	0.440*** (21.63)	0.441*** (21.63)	0.440*** (21.61)	0.440*** (21.58)	0.439*** (21.52)	0.442*** (21.47)
cumcapet~1	-0.000397** (-3.12)	-0.000398** (-3.13)	-0.000452*** (-3.56)	-0.000462*** (-3.65)	-0.000793*** (-6.42)	-0.000840*** (-6.90)	-0.000759*** (-6.29)	-0.000553*** (-4.63)	-0.00172*** (-15.47)
exports	-0.0000198*** (-24.37)	-0.0000198*** (-24.37)	-0.0000200*** (-24.57)	-0.0000200*** (-24.62)	-0.0000194*** (-23.89)	-0.0000194*** (-23.84)	-0.0000188*** (-23.39)	-0.0000187*** (-23.18)	-0.0000231*** (-29.17)
janapril	-0.951 (-1.23)	-0.949 (-1.23)	-0.975 (-1.26)						
mayaug	23.81*** (26.63)	23.80*** (26.63)	23.80*** (26.61)	24.67*** (43.60)	24.07*** (42.64)	24.14*** (42.80)	24.17*** (42.86)	24.14*** (42.72)	21.38*** (31.43)
septnov	7.980*** (8.64)	7.973*** (8.63)	7.714*** (8.36)	8.442*** (11.75)	8.846*** (12.30)	8.896*** (12.38)	9.445*** (13.31)	9.571*** (13.46)	6.626*** (8.39)
hurricane	-1.106 (-0.53)								
econcrisis	-8.973*** (-4.33)	-9.373*** (-4.86)							
diesel	-22.14*** (-30.83)	-22.15*** (-30.85)	-22.27*** (-31.02)	-22.43*** (-31.79)	-23.51*** (-33.56)	-23.85*** (-34.83)	-21.58*** (-43.64)	-21.47*** (-43.33)	-17.57*** (-37.02)
gulf	-0.408*** (-11.66)	-0.407*** (-11.65)	-0.401*** (-11.46)	-0.399*** (-11.42)					
illriver	-0.109*** (-49.48)	-0.109*** (-49.48)	-0.110*** (-50.18)	-0.110*** (-51.75)	-0.106*** (-50.56)	-0.105*** (-52.63)	-0.106*** (-53.35)	-0.106*** (-53.58)	-0.104*** (-51.78)
pnw	0.702*** (12.39)	0.700*** (12.38)	0.691*** (12.22)	0.691*** (12.22)	0.0932*** (4.35)	0.101*** (4.78)			
secunit	0.00489*** (3.91)	0.00478*** (3.88)	0.00536*** (4.36)	0.00533*** (4.34)	0.00277* (2.29)				
matunit	0.0677*** (41.41)	0.0677*** (41.41)	0.0672*** (41.17)	0.0674*** (41.44)	0.0682*** (41.90)	0.0684*** (42.12)	0.0646*** (45.65)	0.0643*** (45.37)	0.0322*** (50.46)
matshuttle	-0.0350*** (-26.06)	-0.0350*** (-26.06)	-0.0342*** (-25.66)	-0.0342*** (-25.67)	-0.0349*** (-26.13)	-0.0348*** (-26.05)	-0.0334*** (-25.61)	-0.0331*** (-25.39)	
disrup2	-2.685*** (-4.26)	-2.687*** (-4.26)	-2.647*** (-4.20)	-2.522*** (-4.05)	-2.695*** (-4.32)	-2.731*** (-4.38)	-2.554*** (-4.10)	-2.132*** (-3.42)	-0.791 (-1.07)
disrup1									-4.136*** (-5.36)
_cons	2.055 (0.91)	1.991 (0.88)	1.548 (0.69)	0.438 (0.21)	1.611 (0.78)	0.862 (0.42)	3.196 (1.61)	5.249** (2.65)	-23.39*** (-14.37)
N	32692	32692	32692	32692	32692	32692	32692	32692	32692
R-sq	0.371	0.371	0.371	0.371	0.368	0.368	0.368	0.366	0.354



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	basis	basis	basis	basis	basis	basis	basis	basis	basis
production	-0.00000835*** (-26.08)	-0.00000834*** (-26.05)	-0.00000840*** (-26.22)	-0.00000845*** (-26.37)	-0.00000846*** (-26.41)	-0.00000848*** (-26.49)	-0.00000848*** (-27.30)	-0.00000875***	
chgbasis	0.454*** (25.88)	0.453*** (25.87)	0.454*** (25.86)	0.453*** (25.82)	0.453*** (25.82)	0.454*** (25.84)	0.452*** (25.67)	0.452*** (25.35)	0.453*** (25.39)
cumcapet~1	-0.00736*** (-28.45)	-0.00735*** (-28.41)	-0.00713*** (-27.82)	-0.00680*** (-26.88)	-0.00665*** (-29.06)	-0.00655*** (-29.07)	-0.00568*** (-26.18)	-0.00651*** (-29.98)	-0.00768*** (-44.93)
exports	-0.0000107*** (-13.98)	-0.0000107*** (-14.00)	-0.0000106*** (-13.91)	-0.0000106*** (-13.88)	-0.0000107*** (-14.15)	-0.0000108*** (-14.20)	-0.00000973*** (-12.85)	-0.00000986*** (-12.86)	-0.0000104*** (-13.59)
janapril	5.581*** (7.77)	5.584*** (7.77)	5.533*** (7.70)						
mayaug	27.25*** (33.12)	27.27*** (33.14)	27.24*** (33.08)	22.38*** (42.26)	22.43*** (42.49)	22.37*** (42.41)	22.49*** (42.51)	22.37*** (41.78)	19.60*** (30.56)
septnov	5.465*** (6.41)	5.491*** (6.44)	5.774*** (6.78)	1.788** (2.64)	1.784** (2.63)	1.782** (2.63)	3.565*** (5.35)	3.300*** (4.89)	0.412 (0.55)
hurricane	4.328* (2.08)								
econcrisis	10.73*** (4.89)	12.39*** (6.06)							
diesel	-33.24*** (-47.01)	-33.20*** (-46.97)	-32.93*** (-46.65)	-31.63*** (-46.10)	-31.40*** (-47.22)	-31.03*** (-47.80)	-25.07*** (-51.46)	-25.16*** (-51.05)	-24.45*** (-50.42)
gulf	0.0802* (2.37)	0.0765* (2.26)	0.0641 (1.90)	0.0448 (1.33)					
illriver	-0.0814*** (-37.95)	-0.0815*** (-38.00)	-0.0807*** (-37.67)	-0.0854*** (-41.56)	-0.0860*** (-42.84)	-0.0879*** (-47.15)	-0.0914*** (-49.37)	-0.0910*** (-48.55)	-0.0893*** (-47.69)
pnw	0.175*** (3.37)	0.182*** (3.51)	0.196*** (3.78)	0.202*** (3.90)	0.266*** (14.07)	0.259*** (13.84)			
secunit	-0.00363** (-3.11)	-0.00324** (-2.81)	-0.00372** (-3.23)	-0.00327** (-2.84)	-0.00285* (-2.57)				
matunit	0.0655*** (42.96)	0.0655*** (43.00)	0.0661*** (43.41)	0.0648*** (42.80)	0.0647*** (42.78)	0.0645*** (42.70)	0.0553*** (40.64)	0.0585*** (42.60)	0.0489*** (61.35)
matshuttle	-0.0101*** (-6.74)	-0.0103*** (-6.84)	-0.0117*** (-7.90)	-0.0125*** (-8.41)	-0.0128*** (-8.76)	-0.0132*** (-9.05)	-0.0123*** (-8.43)	-0.0128*** (-8.67)	
disrup2	-4.814*** (-8.21)	-4.809*** (-8.21)	-4.811*** (-8.20)	-5.369*** (-9.22)	-5.317*** (-9.15)	-5.258*** (-9.05)	-4.591*** (-7.91)	-5.039*** (-8.58)	-2.901*** (-4.19)
disrup1									-5.075*** (-6.97)
_cons	-28.96*** (-10.78)	-28.76*** (-10.71)	-27.09*** (-10.14)	-19.07*** (-7.74)	-18.48*** (-7.63)	-17.40*** (-7.29)	-6.764** (-2.99)	-21.43*** (-9.62)	-33.51*** (-21.40)
N	31316	31316	31316	31316	31316	31316	31316	31316	31316
R-sq	0.402	0.402	0.402	0.400	0.400	0.400	0.397	0.382	0.382