The Sideways Effect: A Test for Changes in the Demand for Merlot and Pinot Noir Wines

Steven S. Cuellar, Ph.D.*
Department of Economics
Sonoma State University
1801 East Cotati Avenue
Rohnert Park, CA 94928
(707) 664-2305
Steve.Cuellar@Sonoma.edu

Abstract

This paper examines the effect of the movie Sideways on US wine consumption. Specifically, we examine the effects of the movie on the consumption of Merlot, which is derided in the movie and the effect on Pinot Noir, which is praised. We examine the trends in consumption before and after the movie and perform statistical tests for structural changes in consumption. We also estimate demand functions for both Merlot and Pinot Noir and test for differences in their demands before and after the movie. Finally, we test for changes in consumption of each varietal by price point.

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Introduction

In the movie Sideways, there is a memorable seen in which the lead character adamantly refuses to drink Merlot, which is derided in the movie. The same character goes on to praise Pinot Noir in other scenes. While the memorable line refusing to drink Merlot in the movie has often been mimicked by wine consumers, the effect of the movie has become folklore in the wine industry supported by scant anecdotal evidence at best. For example, George Schofield in the April 2008 issue of Wine Business Monthly refers to the effects of the movie on Merlot as the "debacle following the release of the Sideways motion picture." This paper examines data on U.S. wine sales for the period encompassing the movie1999-2008. Our approach is simple: Changes in the demand for either Merlot or Pinot Noir should be reflected in the price, quantity or both of each varietal. Thus we examine the trends in price and cases sold of Merlot and Pinot Noir for periods before and after the movies release. We also estimate demand functions for each varietal before and after the movies release and test for statistical difference. Finally, we re-analyze the data by price to test for any differential effects of the movie by price.

The Movie

Sideways was released on October 22, 2004, nominated for 5 Academy Awards on January 25, 2005, winning one, and closed on May 19, 2005. In the 30 weeks the movie was in theaters, gross domestic ticket sales were over $70 million with worldwide sales reaching just over $100 million making it the 40th highest grossing movie of the year.

The number one grossing movie of the year Shrek 2, grossed over $440 million and nearly a billion dollars worldwide that same year.

Table 1		
	Pre-Nomination 10/22/04 – 1/25/05	Post Nomination 1/25/05 – 5/19/05
Number of Theaters	699	1,229
Gross Domestic Ticket Sales	$32,428,941	$39,074,652

Source: Boxofficemojo.com

The Data

To examine the effect of the movie on wine consumption, we use annual scan data from U.S. retail chains. Annual data was used because it allowed us to examine a period sufficiently previous to the release of the movie in 2004. Monthly or weekly data was not available for periods long enough to examine the trends in wine consumption prior to 2004. In addition to the Merlot and Pinot Noir, we also examine the "non-Sideways" red wines Cabernet Sauvignon and Syrah as controls. Finally, to control for the effects of promotion which may have occurred as a result of the movie, we include variables for promotion. Promotion in the data set is defined as one of four types: (1) Features, which includes such things as mailers and newspaper advertisements. (2) In store displays. (3) A combination of features and displays. (4) Temporary price reductions of 5% or more. For our purposes, we only distinguish between promoted and non-promoted price and sales.

Results

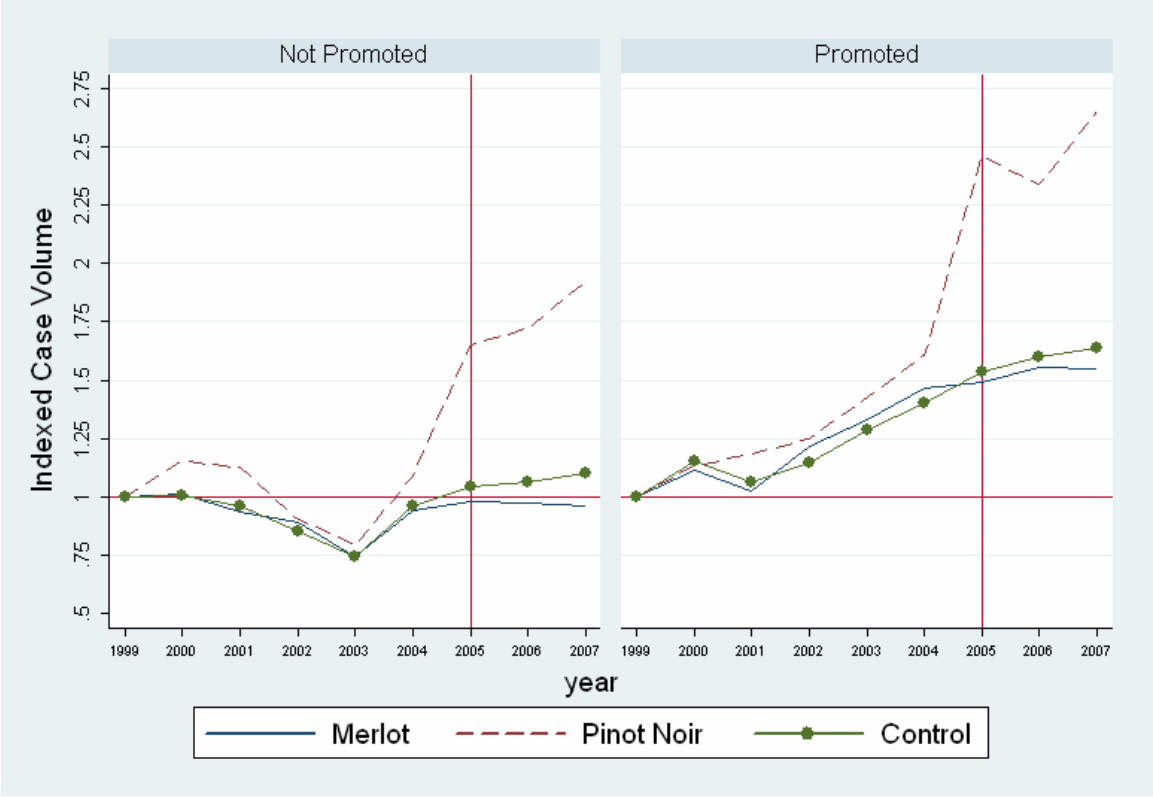
Any changes in the demand for either Merlot or Pinot Noir caused by the movie Sideways should be reflected in the price, quantity or both of each varietal. For Merlot, a

reduction in demand resulting from the negative portrayal in the movie should reduce price and/or quantity. Conversely, for Pinot Noir, an increase in demand should increase price and/or quantity. Thus we examine the trends in price and cases sold of Merlot and Pinot Noir for periods before and after the movies release. The movie was released in October 2004 and nominated for an Academy Award in January of 2005. Since the wine data is end of year data, we chose 2005 to delineate the period before and after the movie.

Case Volume

Consider first annual case volume of Merlot, Pinot Noir and a control group of non-Sideways red wines consisting of Cabernet Sauvignon and Syrah. The largest seller by volume in the U.S. is Merlot, followed by Cabernet Sauvignon, Syrah and Pinot Noir with Merlot and Cabernet Sauvignon selling almost twice as much as Syrah and Pinot Noir. To adjust for the differences in volume we index annual case volume to one in 1999 thus allowing us to examine the relative growth rate of each group. Figure 1 shows index average annual case volume of Merlot, Pinot Noir and the control group from 1999-2007. Figure 1 shows an interesting pattern of growth of the three groups. Prior to 2004, the three groups appear to move similarly with Pinot Noir consistently at a higher growth rate than Merlot and the control. This is true of both promoted and non-promoted case volume. However, after 2003 and especially 2004 the patterns of growth appear to diverge. While it is difficult to attribute any change in the growth rate of case volume to the movie, we do observe relative growth of Pinot Noir and a stagnant and even declining growth in case volume of Merlot since 2004.

Figure 1



We begin our empirical analysis by estimating the following equation:

$$\text{Cases}_{it} = b_0 + b_1 Time_{it} + b_2 Time_{it}^2 + b_3 D2005 + b_4 D2005T_{it} + u_{it} \qquad (1)$$

Where: Cases_{it} represents the annual cases volume of wine i sold in year t.

Time_i is a linear time variable representing the years 1999-2008.

Time^2 represents the square of time.

D2005 represents a dummy variable which equals one for the years 2005-2008.

D2005T is the interaction of D2005 and time.

Following Chow (1960), we test for a structural change in the growth rate of case volume by performing an F-test of joint significance on the subset of dummy and interaction terms. Table 2 provides a summary of regression and F-test results.

Table 2

	Non Promoted Merlot	Promoted Merlot	Non Promoted Pinot Noir	Promoted Pinot Noir	Non Promoted Control	Promoted Control
Time	-0.137	-0.013	-0.157	-0.055	-0.164	-0.048
	(60.42)**	(8.07)**	(26.44)**	(9.87)**	(99.02)**	(6.76)**
Time Squared	0.015	0.015	0.019	0.024	0.02	0.012
	(48.22)**	(66.96)**	(23.69)**	(31.76)**	(90.68)**	(12.15)**
D2005	0.83	1.237	0.572	2.036	0.806	0.711
	(44.45)**	(91.57)**	(12.13)**	(46.79)**	(61.35)**	(12.67)**
D2005*Time	-0.112	-0.197	-0.005	-0.218	-0.116	-0.109
	(38.01)**	(92.56)**	(0.73)	(31.62)**	(55.75)**	(12.31)**
Constant	1.174	1.012	1.27	1.101	1.158	0.834
	(321.68)**	(379.64)**	(130.59)**	(119.65)**	(427.41)**	(70.89)**
Observations	7845	6665	3809	3190	15012	12649
R-squared	0.55	0.97	0.95	0.99	0.76	0.22
SideWays Effect F-Statistic	7490.88	21149.15	26355.75	1026549.4	1826.73	54.97

Absolute value of t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Interestingly, all three groups show a structural change in the growth rate of case volume following the movie Sideways. The F-test indicates that Pinot Noir observed a relatively large increase in case volume while Merlot and the control group experienced small but statistically significant declines in their growth rates. Because of the similarity in the growth rates of Merlot and the control group, we perform an F-test to see if the growth rate of Merlot differs significantly from the growth rate of the control group. Table 2 shows these results along with the result for Pinot Noir.

Table 3				
	Non-Promoted		Promoted	
	R-Squared	F-Statistic	R-Squared	F-Statistic
Merlot	.6883	15.66	.6868	15.31
Pinot Noir	.5752	38.49	.6382	40.94

From Table 3, we see that the growth rate of Merlot was indeed less than that of the control group, while the growth rate of Pinot Noir was greater than that of the control group. All results are statistically significant and hold for promoted and non-promoted case volume.

While the results so far appear to coincide with conventional wisdom regarding the effect of Sideways on wine consumption, it is possible that much of the growth in annual wine sales are confounded by the increased coverage of the Nielsen data since 1999. To correct for this we construct three new variables examining the ratio of case volume among the three groups. We examine the ratio of Merlot to Pinot Noir, Merlot to the control group and Pinot Noir to the control group. Figure 3 shows a graph of all three new variables. Once again we index the ratios to one for ease of interpretation. Consider first the ratio of Merlot to Pinot Noir. If the move Sideways induced an decrease in Merlot consumption while simultaneously increasing Pinot Noir consumption, then we

would expect the ratio of the two to decrease. This is in fact what we observe in Figure 3 for both promoted and non-promoted volume. The ratio of Merlot to the non-Sideways control appears to be relatively stable prior to the movie, then decreases slightly after. Conversely, the growth in the ratio of Pinot Noir to the control group increases significantly after the movies release. Figure 2 and Table 4 show that the results are the same for promoted and non-promoted case volume and all are statistically significant.

Figure 2

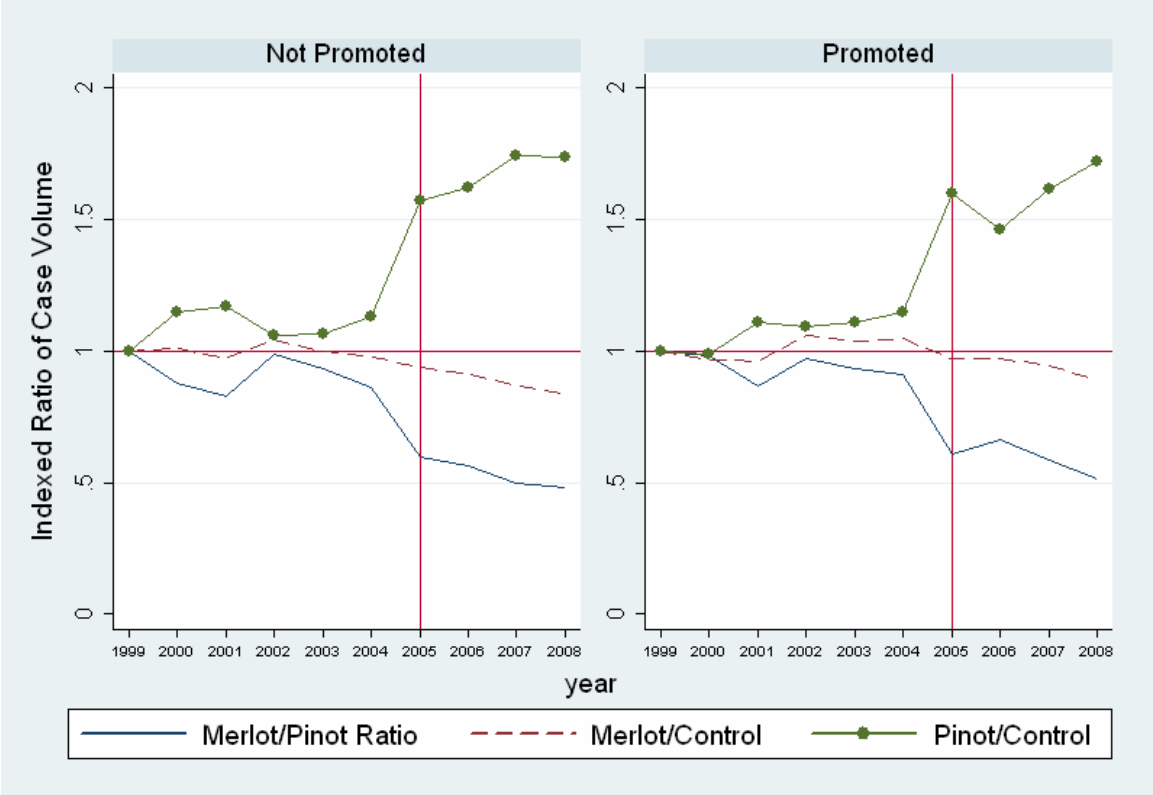


Table 4

	Non Promoted Merlot/Pinot	Promoted Merlot/Pinot	Non Promoted Merlot/Control	Promoted Merlot/Control	Non Promoted Pinot/Control	Promoted Pinot/Control
Time	-0.018	0.001	0.024	0.025	0.053	-0.024
	(23.80)**	-1.83	(84.40)**	(60.11)**	(68.69)**	(21.85)**
Time Squared	0.001	-0.002	-0.004	-0.001	-0.006	0.007
	(11.39)**	(19.19)**	(96.56)**	(23.66)**	(60.28)**	(50.32)**
D2005	0.007	-0.215	-0.043	0.128	-0.306	0.638
	-1.02	(33.69)**	(17.75)**	(35.42)**	(46.25)**	(66.92)**
D2005*Time	-0.043	-0.004	0.003	-0.029	0.115	-0.051
	(40.93)**	(3.66)**	(7.87)**	(50.45)**	(110.35)**	(33.64)**
Constant	0.963	0.969	0.974	0.945	1.006	1.045
	(759.97)**	(790.96)**	(2122.49)**	(1354.76)**	(799.77)**	(569.97)**
Observations	45997	38480	45997	38480	45997	38480
R-squared	0.96	0.96	0.95	0.84	0.98	0.96
SideWays Effect F-Statistic	59863.36	54640.21	3740.98	9758.88	160000	44534.60

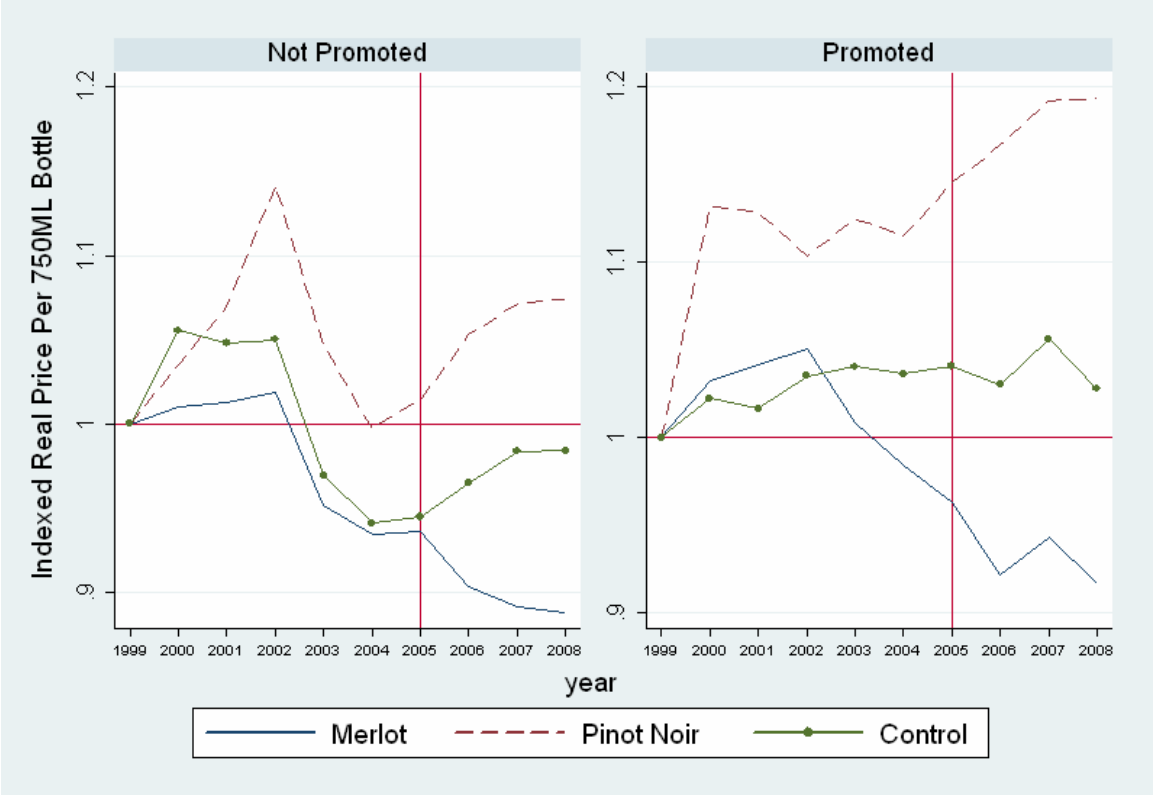
Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

Price

The next variable we examine is price. Conventional economic theory would posit that as long as supply is not perfectly elastic, any change in demand should result in a price change. If the demand for Merlot fell due to the negative publicity surrounding the movie Sideways, then we should observe a decrease in the price of Merlot. Similarly, if the demand for Pinot Noir rose as a result of the movie Sideways, we should observe an increase in price. Figure 3 shows data on the real price of Merlot, Pinot Noir and the non-Sideways red wine control group of Cabernet Sauvignon and Syrah. All prices are indexed to one. Figure 3 shows that indeed promoted and non-promoted price of Merlot falls while the promoted and non-promoted price of Pinot Noir rises following the movie Sideways.

Figure 3



To test for the effects of the movie on price, we replace cases in Equation 1 with price and estimate the follow equation by OLS:

$$\text{Price}_{it} = b_0 + b_1 Time_{it} + b_2 Time_{it}^2 + b_3 D2005 + b_4 D2005T_{it} + u_{it} \quad (2)$$

Table 5 summarizes the regression results and indicates that for all three groups, the movie Sideways induced statistically significant changes. Interestingly, it appears that the movie sideways resulted in an increase in non-promoted price of the non-Sideways red wine control group while producing a small but statistically significant increase in promoted price of the control group.

Table 5

	Non Promoted Merlot	Promoted Merlot	Non Promoted Pinot Noir	Promoted Pinot Noir	Non Promoted Control	Promoted Control
Time	0.023	0.043	0.115	0.074	0.059	0.023
	(42.88)**	(73.08)**	(107.19)**	(66.71)**	(163.59)**	(76.03)**
Time Squared	-0.005	-0.007	-0.016	-0.008	-0.011	-0.002
	(74.58)**	(85.47)**	(112.39)**	(57.44)**	(223.05)**	(54.74)**
D2005	-0.328	-0.418	-1.15	-0.544	-0.876	-0.087
	(70.95)**	(81.32)**	(125.58)**	(57.97)**	(285.25)**	(34.42)**
D2005*Time	0.052	0.061	0.179	0.087	0.137	0.013
	(71.47)**	(75.07)**	(123.74)**	(59.05)**	(283.47)**	(33.78)**
Constant	0.989	0.971	0.892	0.97	0.967	0.979
	(1140.60)**	(999.63)**	(499.46)**	(519.21)**	(1609.09)**	(1952.80)**
Observations	8832	7484	4441	3725	17238	14484
R-squared	0.93	0.92	0.79	0.88	0.91	0.58
SideWays Effect F-Statistic	2553.86	4495.87	7931.76	1767.65	40684.89	599.98

Absolute value of t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

Demand

Next we estimate demand functions for Merlot, Pinot Noir and the control group for the years before the movies release and after. The model we use is,

$$\text{Cases}_{it} = b_0 + b_1 \text{Price}_{it} + b_2 Income_{it} + b_3 D2005 + b_4 \text{Price}05_{it} + u_{it} \quad (3)$$

As with all demand estimations, we are concerned about issues of endogeneity and identification. Tests for endogeneity (Hausman 1978), indicates the presence of simultaneity between the price per bottle of wine and the number of cases sold. To correct for this endogeneity we instrument the price of wine using grape prices. Grape prices appear to be the most obvious choice of instruments for the price of wine satisfying the conditions needed for a valid instrument: Grape prices appear uncorrelated with the error term in the demand for wine and as the primary ingredient in a bottle of wine, should be highly correlated with wine prices. Unfortunately, correlations between the price of wine and the price of grapes show little relationship. This is not too surprising given the variation in the price of wine across varietals as well as the variation in price within varietals. In addition, while grapes are the primary ingredient in a bottle of wine, grapes do not constitute the primary cost in producing a bottle of wine, accounting for only about 10% of the price of the average bottle of wine.[1] Nevertheless, of the costs associated with the production of wine, grapes seem a logical choice and appear to be the most tractable. Following Cuellar and Huffman (2008) we correlate the

[1] This is according to a wine industry report published by Gomberg-Frederickson which breaks down the cost of a $13 bottle of wine as follows: Grapes 11%, bottling and packaging 5%, wine making 10%, winery profit, marketing and overhead 19%, distribution 23% and retail markup 32%.

price of grapes using the "bottle price" rule where the price per ton of grapes is roughly 100 times the price of a 750 ML bottle of wine.[2]

The instrument we use is defined as,

$$\text{Price}_{it} = a_0 + a_n \sum_{n=1}^{3} \text{Price}_{i,t-n} + v_{it} \quad (4)$$

Where: Price_{it} represents the price of a bottle of wine of type i in year t.

PriceGrapes is the current and lagged price of grapes per ton for each varietal.

Figures 4-6 show the estimated demand curves for the three groups while Table 6 shows the instrumental variable regression results and F-Statistic for statistical significance of the Sideways effect.

Table 6

	Merlot		Pinot Noir		Control	
	Non-Promoted Cases	Promoted Cases	Non-Promoted Cases	Promoted Cases	Non-Promoted Cases	Promoted Cases
Price	-0.686	-1.256	-1.143	-1.564	-0.765	-1.265
	(10.52)**	(16.51)**	(11.05)**	(12.79)**	(16.85)**	(22.77)**
D2005	0.009	-1.109	0.018	-0.477	-0.276	-0.632
	(0.04)	(4.25)**	(0.05)	(1.11)	(1.82)	(3.76)**
Price*D2005	0.076	0.477	0.236	0.391	0.113	0.375
	-0.84	(4.54)**	-1.77	(2.54)*	(1.89)	(5.26)**
Income	-3.267	0.767	-2.469	0.307	-1.593	1.897
	(3.63)**	(0.76)	(1.95)	(0.22)	(2.25)*	(2.39)*
Constant	37.748	0.453	31.059	5.177	6.917	7.553
	(4.45)**	(0.05)	(2.60)**	(0.39)	(60.86)**	(58.72)**
Observations	8832	7484	4441	3725	14575	12174
R-squared	0.03	0.05	0.06	0.08	0.04	0.07
Sideways Effect F-Statistic	1.69	10.47	10.21	7.72	3.82	14.10

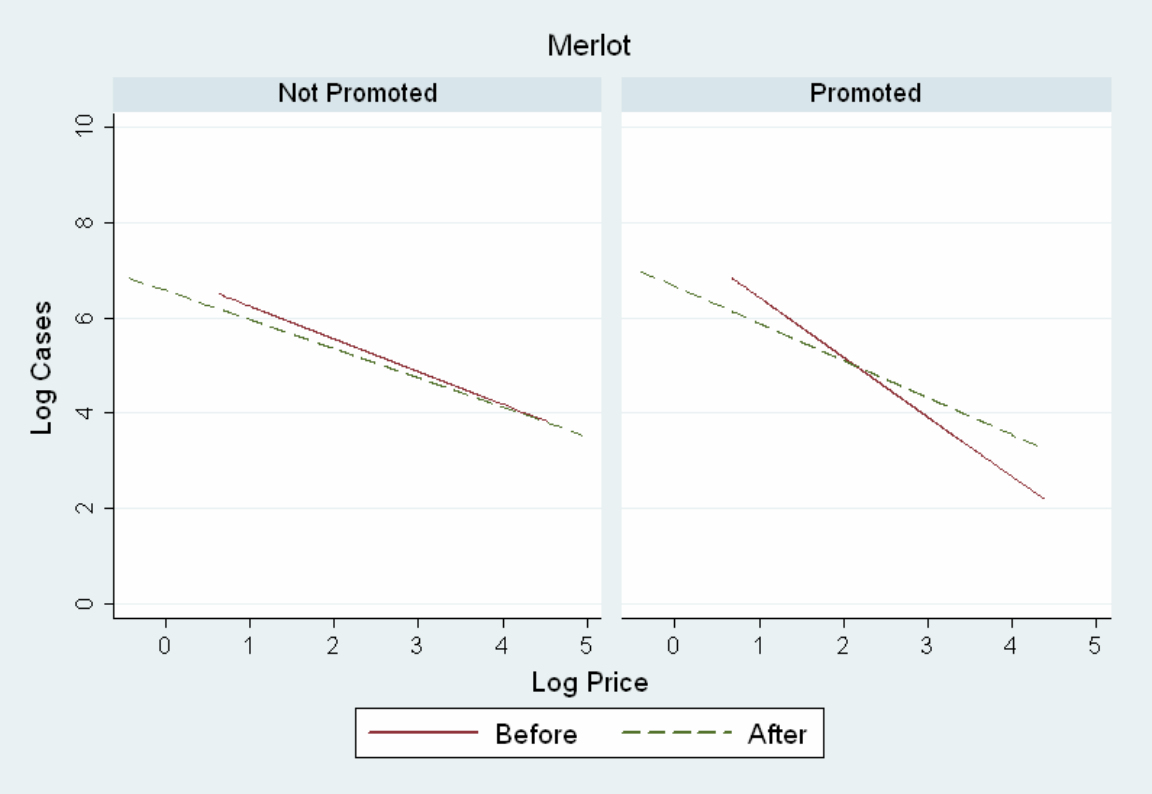
Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

[2] See Cuellar and Huffman (2008) for a complete discussion of the bottle price rule.

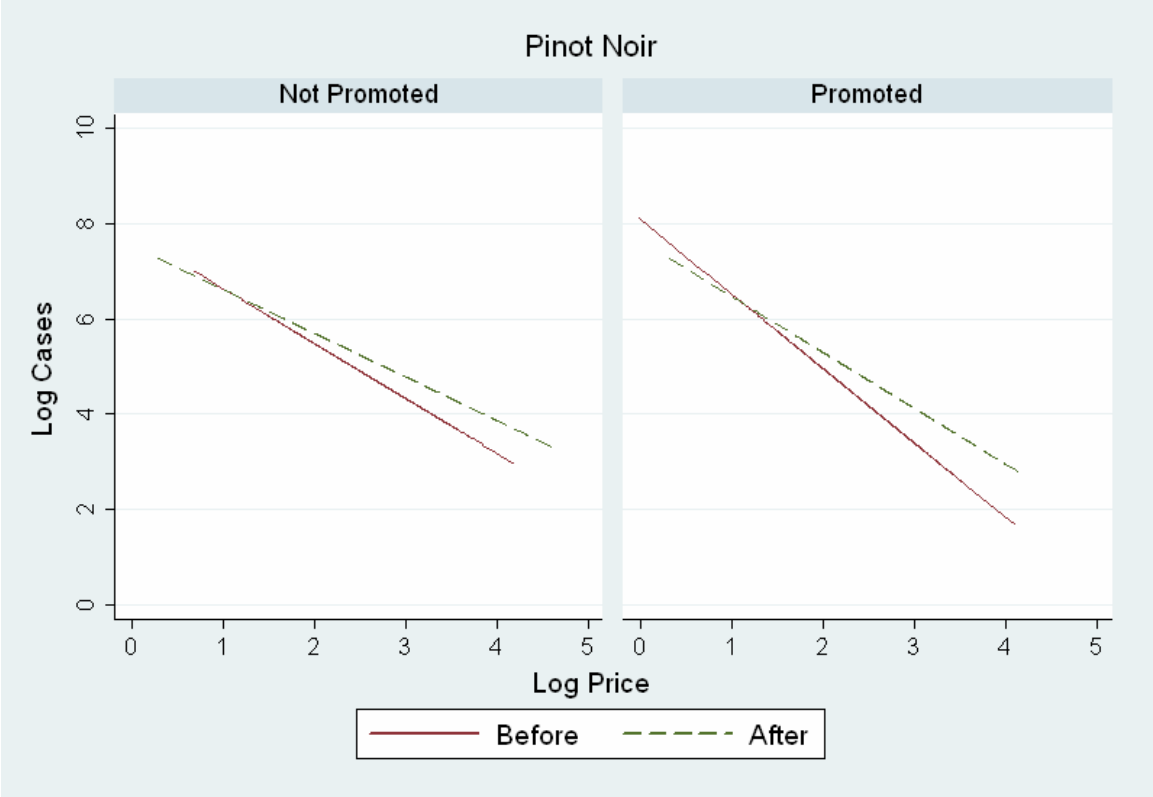
The results for Merlot are shown in Figure 4. As can be seen the non-promoted demand for Merlot does show a slight decrease but it is statistically significantly. Promoted demand for Merlot does however indicate a statistically significant change, although the results can be best interpreted as mixed. The demand curve for promoted Pinot Noir pivots around its center becoming more inelastic.

Figure 4



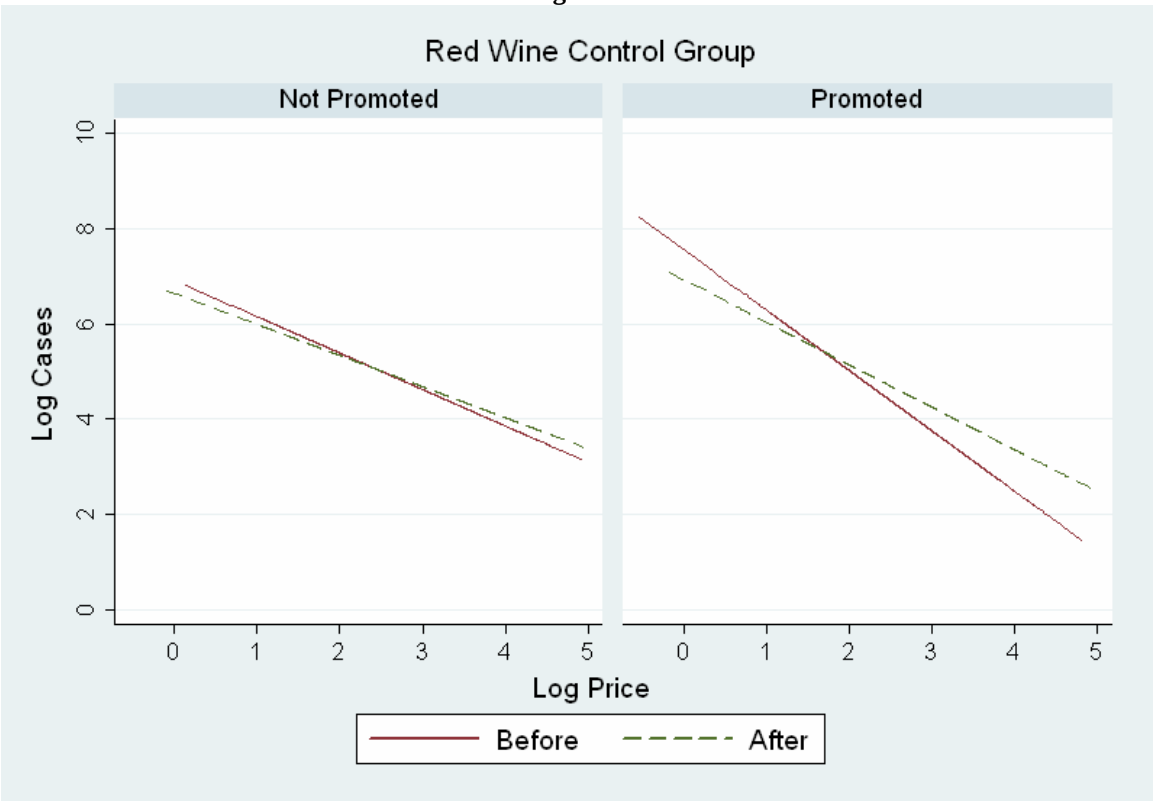
The results for Pinot Noir are shown in Figure 5 and are consistent with the previous results. The movie Sideways appears to cause a statistically significant increase in the demand for both promoted and non-promoted demand of Pinot Noir.

Figure 5



The results for the control group wines are shown in Figure 6 and indicate that both promoted and non-promoted demands pivot causing demand to become more inelastic. Inspection of the regression results in Table 6 show that while the changes are statistically significant, the effects on the non-promoted demand are economically small and significant at the 5% level of significance but not 1%.

Figure 6



Analysis By Price

Finally we examine whether the movie Sideways had different effects on different price segments of wine consumers. For example, if high end wine consumers are more representative of core consumers than low end wine consumers, and core wine consumers are less susceptible to events such as movies and promotion than casual wine consumers, then we would expect the movie Sideways to have a larger effect on lower priced wines than on higher priced wines. To see if the effects of the movie differ by price we re-examine the data segmenting the wines into three categories: Less than $10, $10-less than $20 and $20-$40.

Examining volume, the results for Merlot are shown in Figure 7 and Table 7 and indicate that promoted and non-promoted volume for the lowest priced Merlot (under $10

per bottle) result in a small but statistically significant decrease after the movie Sideways. For the higher priced segments of Merlot, the results are mixed with volume increasing for two of the three categories. The results are generally small for all categories except for the highest priced ($20-$40) segment of promoted Merlot.

Figure 7

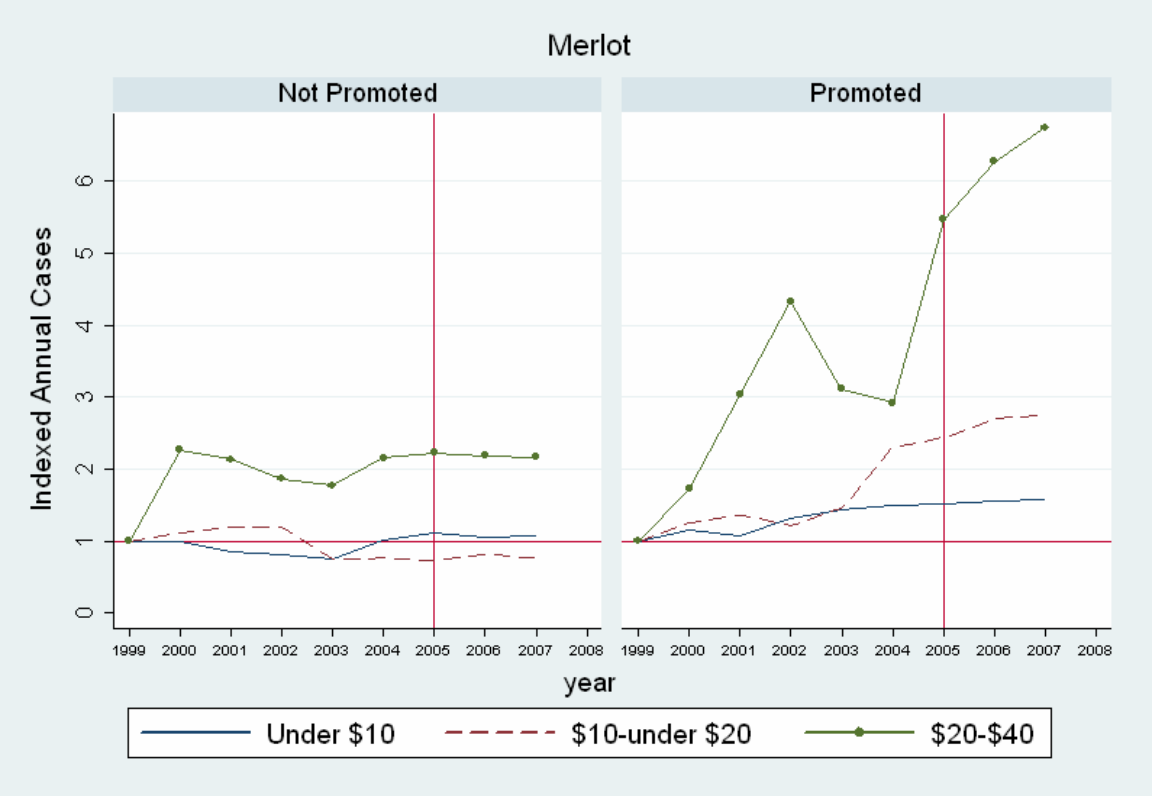


Table 7
Merlot: Indexed Cases

	Not Promoted Under $10	Promoted Under $10	Not Promoted $10- <$20	Promoted $10- <$20	Not Promoted $20-$40	Promoted $20-$40
Time	-0.064	0.344	0.35	0.334	0.761	4.011
	(7.70)**	(29.79)**	(47.37)**	(8.63)**	(18.60)**	(20.66)**
Time Squared	0.007	-0.033	-0.059	-0.016	-0.091	-0.491
	(6.32)**	(21.37)**	(58.87)**	(3.13)**	(16.77)**	(19.72)**
D2005	2.276	0.827	-2.949	4.417	-1.413	-16.846
	(31.13)**	(8.19)**	(45.58)**	(13.22)**	(4.07)**	(10.92)**
D2005*Time	-0.278	-0.064	0.504	-0.514	0.342	3.288
	(24.20)**	(4.05)**	(49.26)**	(9.74)**	(6.24)**	(13.61)**
Constant	1.019	0.554	0.672	0.503	0.574	-4.031
	(74.93)**	(29.69)**	(55.97)**	(7.85)**	(8.26)**	(11.58)**
SideWays Effect						
F-Statistic	2066.68	633.91	1608.56	513.90	184.81	388.72
Observations	4749	4815	3036	2136	934	490
R-squared	0.56	0.61	0.85	0.61	0.62	0.75

Absolute value of t-statistics in parentheses
* significant at 5% level; ** significant at 1% level

The results for Pinot Noir are shown in Figure 8 and Table 8. For all three price points of promoted and non-promoted Pinot Noir, case volume increased after the movie's release. The results are statistically significant for all but one category and generally increase as the price point increases.

Figure 8

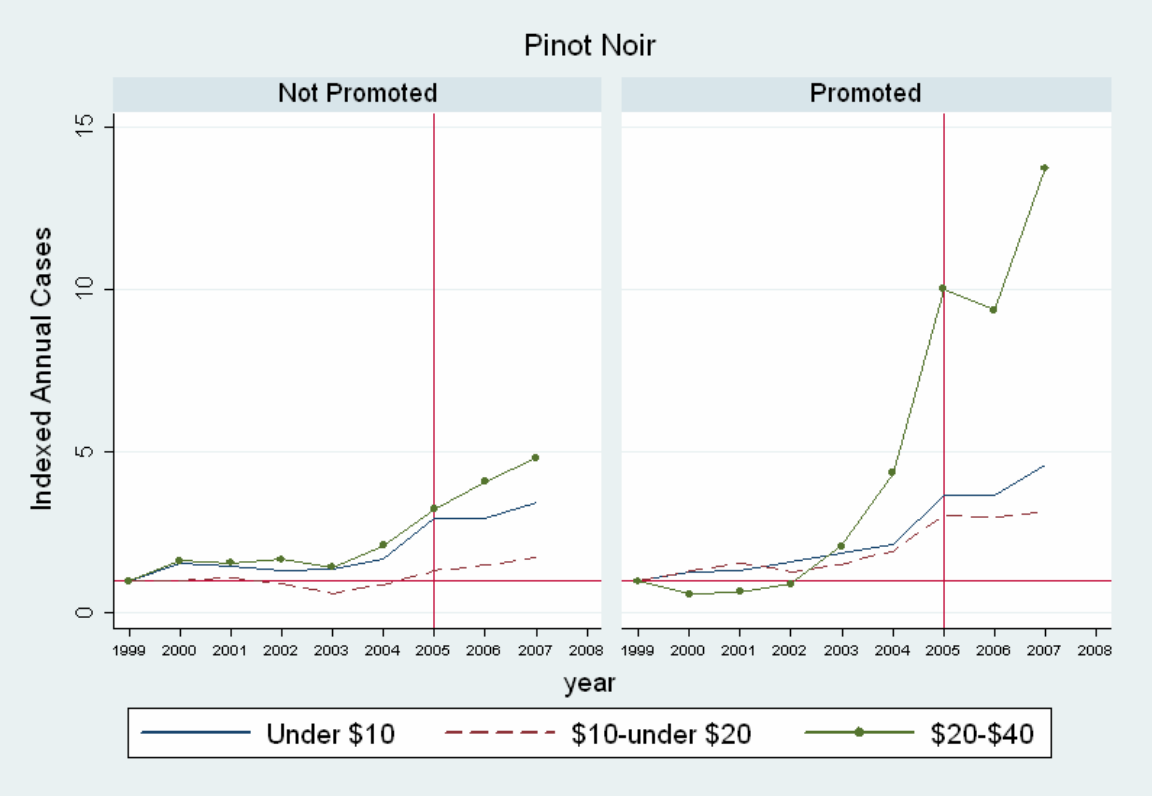


Table 8

Pinot Noir: Indexed Cases

	Not Promoted Under $10	Promoted Under $10	Not Promoted $10- <$20	Promoted $10- <$20	Not Promoted $20-$40	Promoted $20-$40
Time	0.712	0.912	0.324	0.77	2.079	7.551
	(12.21)**	(12.29)**	(13.67)**	(17.56)**	(17.02)**	(11.51)**
Time Squared	-0.087	-0.097	-0.052	-0.084	-0.259	-0.825
	(10.93)**	(9.56)**	(16.40)**	(14.48)**	(16.30)**	(10.33)**
D2005	-0.053	1.384	-1.379	1.052	-8.459	-23.382
	(0.1)	(2.11)*	(6.79)**	(2.89)**	(8.45)**	(4.83)**
D2005*Time	0.329	0.178	0.372	0.137	1.778	5.011
	(4.06)**	(1.72)	(11.62)**	(2.40)*	(11.28)**	(6.67)**
Constant	0.241	-0.187	0.579	0.006	-1.892	-13.247
	(2.61)**	(1.57)	(14.72)**	(0.07)	(8.66)**	(10.33)**
SideWays Effect						
F-Statistic	600.66	535.56	975.75	1279.13	402.97	204.30
Observations	994	1215	2190	1829	1164	647
R-squared	0.71	0.71	0.51	0.75	0.59	0.65

Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

The estimated demand functions for the three price points of Merlot are shown in Figures 9-11 and Table 9. For the lowest priced category of non-promoted Merlot, we obtain a demand function that is positive, though statistically insignificant in price. The results also indicate a statistically significant decrease in demand following the movie's release. The remaining categories of Merlot all result in conventional downward sloping demand functions. While all categories indicate a negative effect of the movie, only the $20-$40 promoted Merlot, similar to the low priced Merlot, indicates a statistically significant decrease in demand. The Chow test F-statistics are consistent with the regression results and indicate a statistically significant effect for non-promoted Merlot under $10 and a nearly significant effect on promoted Merlot from $20-$40.

Figure 9

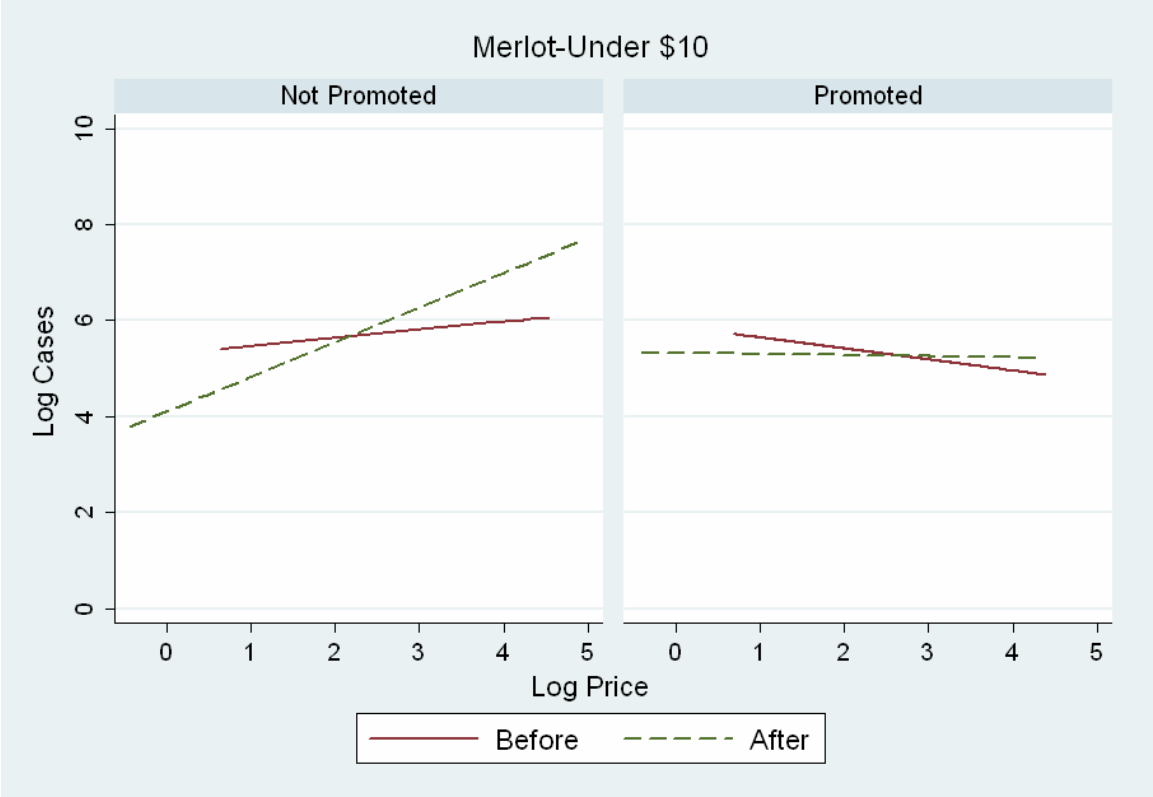


Figure 10

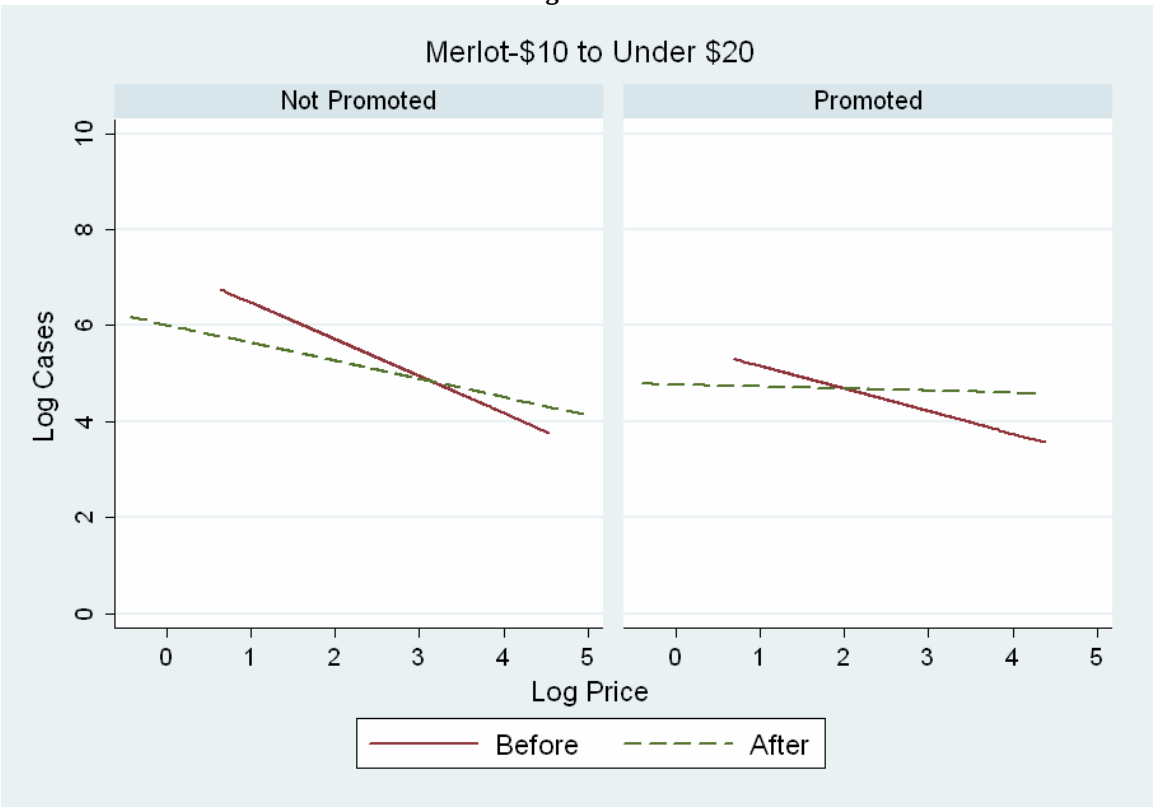


Figure 11

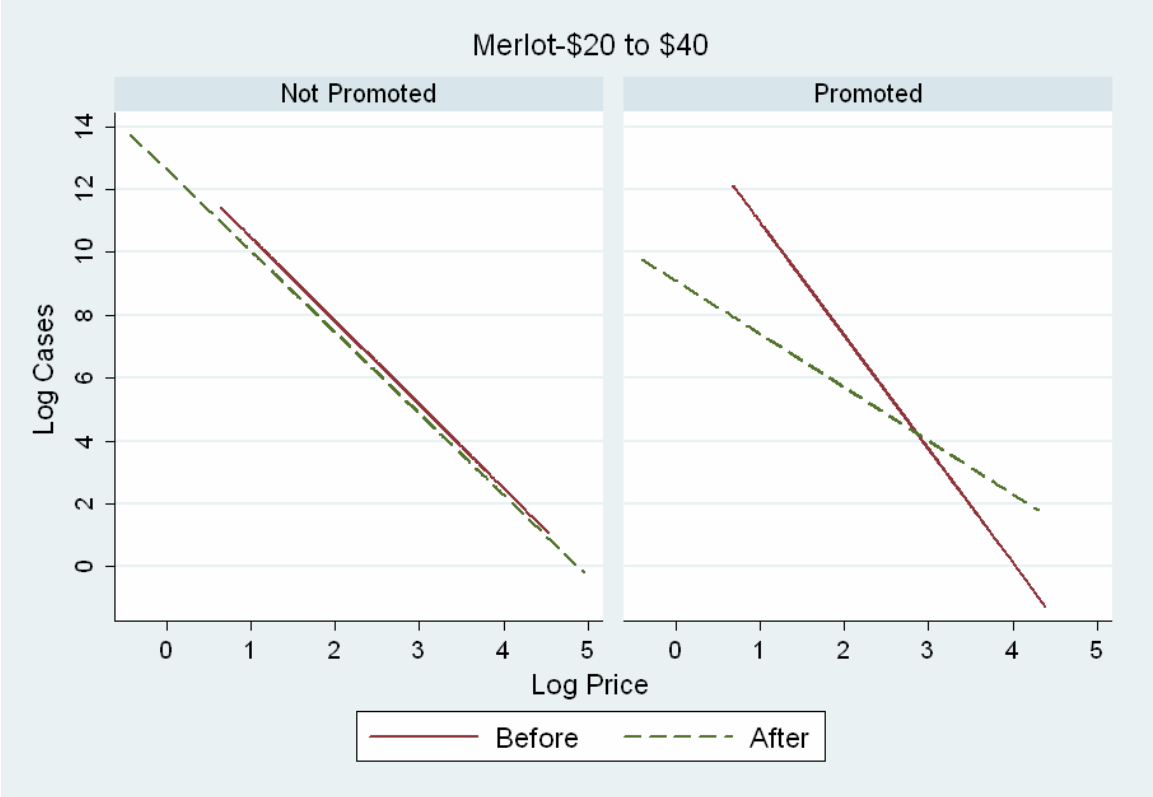


Table 9

Merlot

	Not Promoted	Promoted	Not Promoted	Promoted	Not Promoted	Promoted
	Under $10 Cases	Under $10 Cases	$10- <$20 Cases	$10- <$20 Cases	$20-$40 Cases	$20-$40 Cases
Price	0.17	-0.229	-0.786	-0.445	-2.647	-3.668
	(0.99)	(1.42)	(2.75)**	(1.2)	(4.69)**	(5.16)**
D2005	-0.822	-0.498	-0.922	-1.215	-0.261	-6.031
	(1.76)	(1.14)	(0.86)	(0.88)	(0.1)	(1.93)
Price*D2005	0.551	0.205	0.411	0.421	0.059	1.935
	(2.38)*	(0.93)	(1.01)	(0.8)	(0.08)	(2.01)*
Income	-3.297	-0.41	-3.172	3.425	-1.793	4.514
	(2.63)**	(0.32)	(2.15)*	(1.89)	(0.7)	(1.4)
Constant	36.408	9.738	37.217	-26.755	30.014	-27.857
	(3.08)**	(0.81)	(2.67)**	(1.56)	(1.24)	(0.92)
Observations	4749	4815	3036	2136	934	490
R-squared	0.01	0	0.01	0.01	0.05	0.09
Sideways Effect F-Statistic	3.86*	0.71	0.82	0.46	0.03	2.19

Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level

The demand results for Pinot Noir are shown in Figures 12-14 and Table 10. Similar to low priced Merlot, the demand functions for low priced Pinot Noir result in positive price coefficients, although neither are significant. The remaining demand functions all produce negative and mostly significant price coefficients.

Figure 12

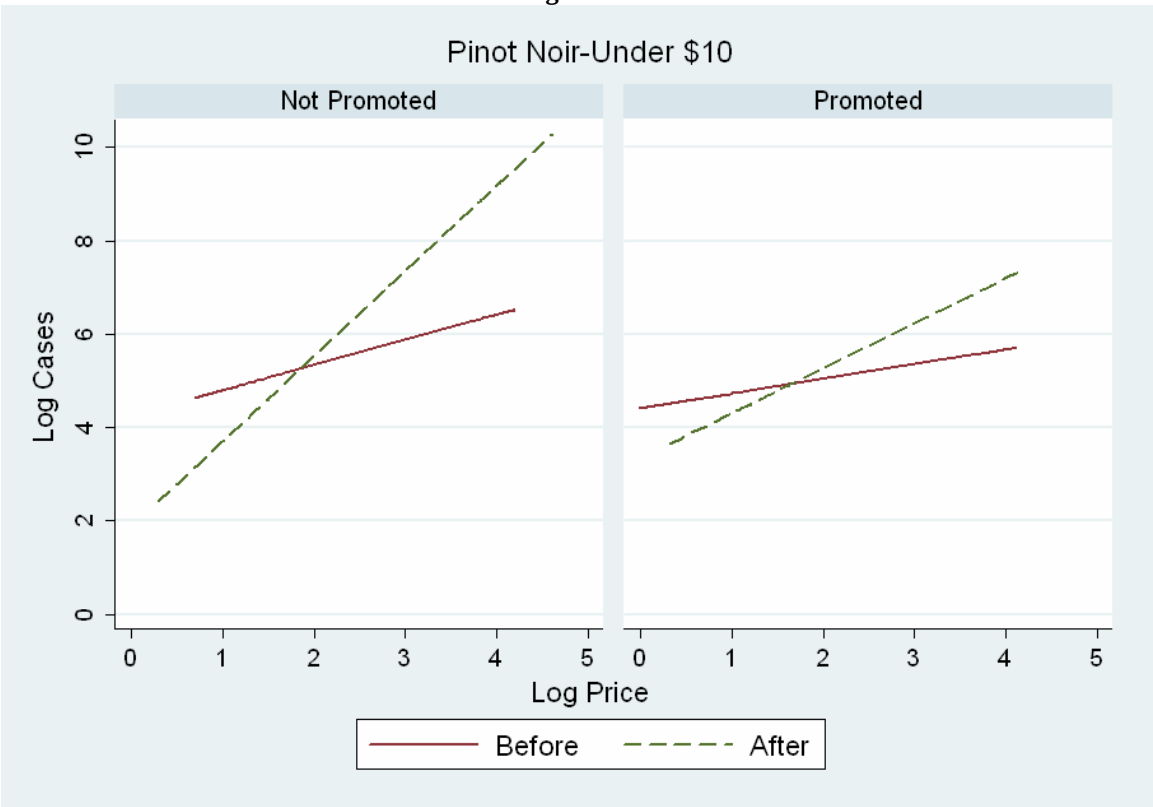

Pinot Noir-Under $10
Not Promoted
Promoted
Log Cases
0
2
4
6
8
10
0
1
2
3
4
5
Log Price
Before
After

Figure 13

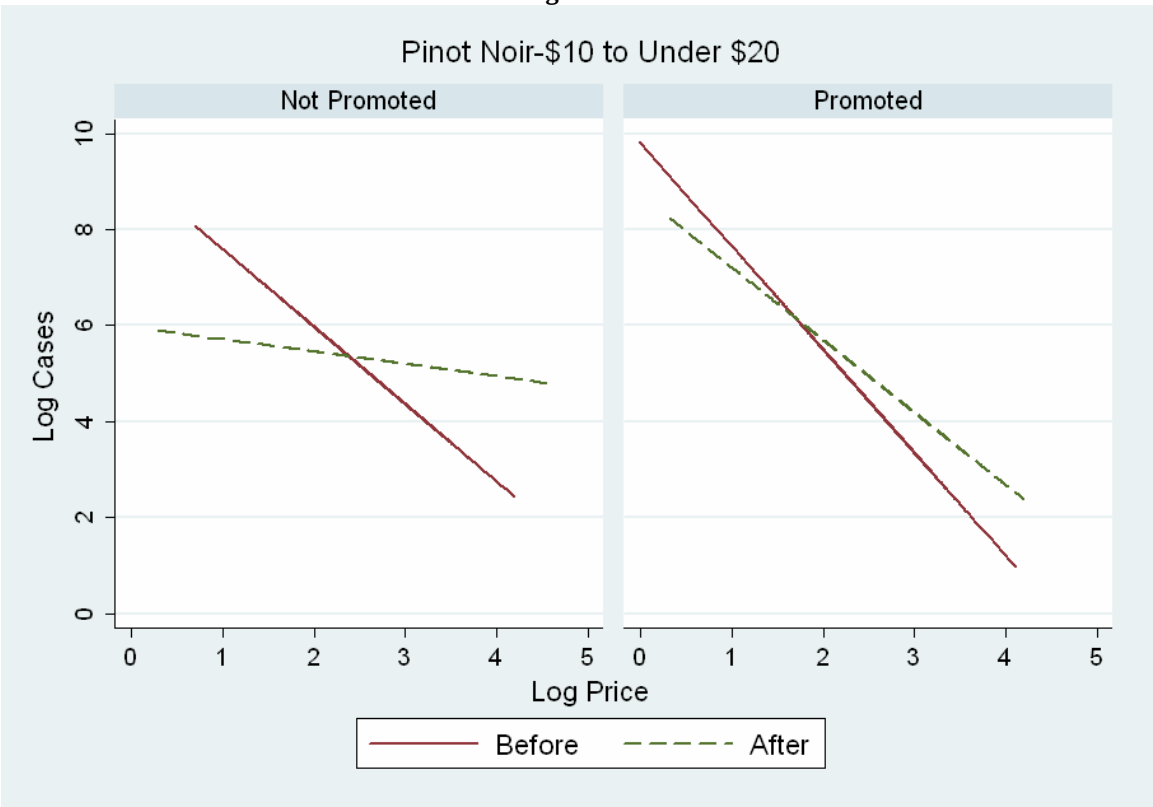


Figure 14

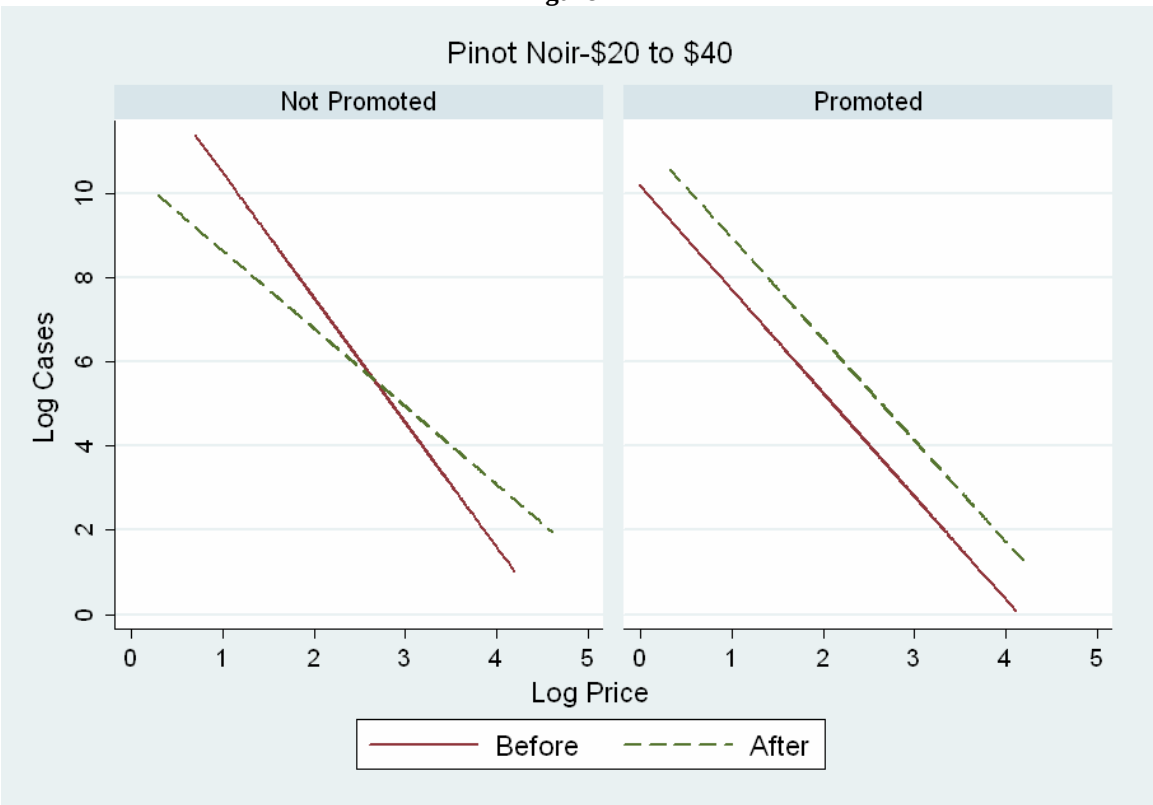


Table 10

Pinot Noir

	Not Promoted	Promoted	Not Promoted	Promoted	Not Promoted	Promoted
	Under $10 Cases	Under $10 Cases	$10- <$20 Cases	$10- <$20 Cases	$20-$40 Cases	$20-$40 Cases
Price	0.546	0.315	-1.612	-2.15	-2.97	-2.686
	(1.34)	(0.92)	(4.57)**	(5.15)**	(5.61)**	(3.27)**
D2005	-2.283	-1.047	-2.745	-1.052	-3.181	-0.205
	(1.97)*	(1.03)	(2.14)*	(0.74)	(1.51)	(0.07)
Price*D2005	1.28	0.647	1.395	0.644	1.111	0.197
	(2.32)*	(1.33)	(2.91)**	(1.2)	(1.72)	(0.21)
Income	-0.806	-0.169	-5.339	-0.393	2.032	8.914
	(0.29)	(0.06)	(3.08)**	(0.2)	(0.89)	(2.84)**
Constant	11.855	6.008	59.579	13.505	-5.705	-73.31
	(0.45)	(0.24)	(3.64)**	(0.74)	(0.26)	(2.49)*
Observations	994	1215	2190	1829	1164	647
R-squared	0.03	0.01	0.02	0.04	0.06	0.14
Sideways Effect F-Statistic	3.00*	1.11	13.92**	4.60**	2.62	0.73

Absolute value of t-statistics in parentheses

* significant at 5% level; ** significant at 1% level