"Southwest Effect" – Decisions and Effects of Low Cost Carriers

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ABSTRACT

This paper reports the findings of an empirical study of low cost airlines. The investigation centers upon low cost strategies and organization structure of three airlines in the United States over a four year period. Results show that such strategic combinations are very influential on the entire market, resulting in increased sales for all carriers and a decrease in the average fare sold. Of particular note is the role that structure plays in low cost airlines that enables success as they continue growing and competing in new geographic markets.

Key words: Low cost, Strategy, Airlines

Literature

In many industries (i.e. automotive, communications, transportation, electronics) firms are constantly engaging competition. Of these competitors, the low cost firm is usually perceived as stealing the market share of price-conscious consumers. This realized to be at the expense of the rest of the competitors in the industry. But, is this really the case? Is the entrant of a new, low cost competitor purely negative with only consequences to offer the competition?

Not much is known regarding the positive attributes of a new, low cost entrant. Mitra and Golder (2002) help aid in the understanding of predictors in entry decisions and resulting performances of foreign entrants. Gielens and Dekimpe (2007) discuss the

recent importance of understanding the cross-effects of new entrants in a national market and the resulting effect of competition in other countries; however, within the same market. This issue is significant to every industry and setting as there is always the threat of a new, lower cost entrant emerging.

One significantly researched corporation is the $350 billion retail giant Wal-Mart, Inc. The Wal-Mart effect is a popular research idea in a vast array of disciplines. Emak Basker (2005) demonstrates that consumers win when Wal-Mart enters their market. For typical drugstore items (e.g. shampoo and aspirin), the immediate decrease in price is 1.5-3% and the long term price decrease can be three to four times that amount. Curry and Jain (2002) go even further and find that prices of 100 grocery and non-grocery items are 17-39% lower at Wal-Mart and these prices are an average of 13% lower at all groceries in cities with Wal-Mart stores compared to cities without Wal-Mart stores. There is also new evidence that prices at Wal-Mart are more stable than prices at competitors, as Wal-Mart adjusts prices one-third to three times slower for cost increases and five to seven times slower for cost decreases (Martens, 2009). However, it is important to note that though these are competitors of Wal-Mart, none of the studied competitors are direct competitors. None are large retailers, but rather, more focused (niche) retailers (e.g. grocery and drug stores). Hence, the research does not focus on the effects of direct competitors. Thus, there is an apparent omission in the Strategic management literature regarding the effects Wal-Mart has had on the retail industry. More precisely, what are the effects on the market when a low cost entrant emerges in a market? When Wal-Mart enters a new market, what are the strategic effect on direct competitors and consumers? Retail is not the only industry where the strategic management research is noticeably scarce.

The Southwest Effect is a well-researched phenomenon within the air transportation industry. In the transportation literature, this effect demonstrates that when Southwest Airlines, a low cost company, enters into a particular market there is a twofold effect; a significant increase in the number of passengers traveling in the market and a noteworthy decrease in the average fare paid by travelers in the market (Dresner, Lin, & Windle, 1996; USDOT, 1993; Vowles, 2001). Research indicates the Southwest Effect is not only prevalent in the market the carrier enters, but there is evidence that the effect expands into markets in multi-airport regions as well, even if the carrier is only serving one of the airports in the market (Dresner, Lin, & Windle, 1996; Morrison, 2001; Vowles, 2001). Interestingly, this effect has not been well-researched in the strategy industry. One motive for this work was to bring these low cost effects more to light in hopes of furthering research regarding the phenomena. Currently, Ming-Jer Chen examines the strategic implications utilizing the airline industry. His work focuses on competitive timing (1992) and organization size versus strategic initiatives. Chen (1996) gives support for predicting competitive attack and response based on market commonality and resource similarity. It does not however, indicate what effect one low cost player or strategy has on the rest of the market/competition. This is a gap in the research literature that this study aims to fill.

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The rise of low cost carriers as a whole has created an ever expanding field of inquiry. Various approaches have been used to examine fare and service impacts of low cost carriers (Boguslaski, Ito & Lee, 2003; Vowles 2000; Windle and Dresner, 1995), the role of deregulation (Barrett, 2004; Goetz and Sutton, 1997; Graham, Humphreys, Ison & Aicken, 2006; Morrison & Winston, 1995) and competitive response (Graham & Vowles, 2006 Morrell, 2005). Others look at competitive response issues and economic impact at airports served by this carrier group (Cidell, 2006; Fuellhart, 2003; Windle & Dresner, 1999) as well as the various components of a successful low cost carrier model (Graham, 2009; Windle, Lin, & Dresner, 1996; Windle & Dresner, 1999). However, similar to Wal-Mart, the strategic management research is noticeably lacking in the specific arena of the effects a low cost carrier has against the market overall.

History

In 1978, air carriers gained control of the pricing and market selection from the United States federal government through the Airline Deregulation Act. Prior to 1978, the governmental agency with the power to determine which markets a carrier was able to enter and exit and what fares would be allowed to be charged by carriers in a certain market was handled by the Civil Aeronautics Board. As the Airline Deregulation Act ended the power of the Civil Aeronautics Board, it was now market forces that drove airline decision making, rather than politics as previously done. As the industry was in the beginning of deregulation, there was a swoon of new carriers emerging to serve customers across the United States. Many of these carriers were low cost carriers. However, governmental regulation of air transportation markets was not totally eliminated from the 1978 Act. The federal government still controlled the operation of the air traffic control system, as well as the limitation of foreign ownership of domestic airlines. Both of these controls had direct impact of Low Cost Carriers.

The Current Study

The goal of this paper is to begin a preliminary investigation into these low cost effects as evidenced by Wal-Mart and Southwest Airlines when entering a new market. We examine these effects by analyzing the low cost airline industry further, specifically looking at Southwest Airlines and other low cost airlines to see if similar effects are found upon market entrance or if the components of the effect become present only when the significant low cost carrier (Southwest Airlines) enters a market. Therefore, this investigation will concentrate on enplanement and fare changes occurring prior to and following a low cost carrier entering a brand new market with non-stop service.

H_1: Enplanement rates will decrease for the market as a whole when a low cost competitor enters the market.

H_2: Fare rates will decrease for the market as a whole when a low cost competitor enters the market.

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Methodology

Various sources of data were used in the completion of this project. The data was collected beginning in 2000 through the first quarter of 2004. This time frame contains industry conditions prior to 9/11 and recovery of the industry thereafter. The dates of market entry for each of the carriers studied were obtained from each carrier's website. The fare and enplanement data was acquired through Database Products Inc. of Dallas, Texas. Database Products Inc. is a commercial provider of airline data which it obtains from the United States Department of Transportation's Passenger Origin-Destination (O&D) Survey. The survey is a sample of revenue passenger trips moving in whole or in part on domestic and/or international scheduled services. Among the information that is collected in the survey is: (1) Point or origin, (2) operating carrier on each stage flight, (3) fare basis for each coupon, (4) points of stopover and connection, (5) point of destination, (6) number of passengers, and (7) total dollar value of ticket. All data is reported back to the USDOT on a quarterly basis. Database Products Inc. then takes the raw reported data and publishes a cleaned up product available commercially for individual queries. The information from the O&D Survey used in this research includes the average fare and the passengers enplaned for each carrier in each particular market examined.

To determine whether other low cost carriers have a similar effect in markets entered as those seen in the Southwest Effect average fares and enplanements were collected in each studied market one quarter prior to the carrier in question's entry and then a year later. Only those non-stop markets entered from newly served airports by the carriers during the time period of the study are examined. By examining the data one quarter prior to entry, the numbers capture what might be occurring in the market before a low cost carrier enters. Three months is an approximation of the amount of time needed by a carrier to obtain gate space, sell tickets, and advertise their new service. Investigating the market during the same quarter a year later allows the carrier in question to establish themselves in the market and for any competitive responses to be determined. It also controls for seasonal changes within a market.

Table 1
Paired Samples Test

JetBlue	MEAN	STD. DEVIATION	t	sig. (2-tailed)
PASSPRIOR-PASSYRLATER	-3936.882	2595.326	-6254	.01
FAREPRIOR-FAREYRLATER	45.471	45.503	4.12	0.001
Frontier	MEAN	STD. DEVIATION	t	sig. (2-tailed)
PASSPRIOR-PASSYRLATER	-1137.467	879.081	-5.011	<.01
FAREPRIOR-FAREYRLATER	37	31.25	4.586	<.01
Southwest	MEAN	STD. DEVIATION	t	sig. (2-tailed)
PASSPRIOR-PASSYRLATER	-2102.4	1997.834	-4.076	0.001
FAREPRIOR-FAREYRLATER	56.533	44.707	4.898	<.01

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To test for statistical significance in both average fares and enplanements a paired samples test was utilized. This particular statistical method is used to examine whether the means of the two measures are statistically significant. The results are shown in Table 1.

Results and Discussion

In this section, the results of the analysis are shown for each of the individual low cost carriers involved in the study; Southwest, JetBlue, and Frontier. Southwest was chosen as it has been the popular choice in most research fields. JetBlue's selection is based upon the carrier beginning service during the time period of this study. Frontier's inclusion is based upon the carrier having already been in operation during the study period and the carrier operating at the hub (Denver) of an established "legacy" carrier, United. Another important factor for the selection of these three carriers is the different strategic operational systems utilized by each airline during the study period.

Southwest is generally a point-to-point short haul carrier. Frontier operates a hub and spoke system focusing on flowing passengers through its hub in Denver. JetBlue operates a combination of both systems; flowing passengers traveling north/south on the east coast of the United States through its hub in New York City's John F. Kennedy (JFK) Airport and connecting New York City to a number of destinations across the country with point-to-point service. The result of the paired samples test for statistical significance, shown in table 1, confirms the changes in both number of passengers enplaned and average fares was statistically significant between the time periods examined for all three carriers.

Southwest Airlines

Southwest is considered the pioneer of low cost service in the United States and is touted as one of the models used by low cost carriers around the world. The carrier began service in 1971 as an interstate airline in Texas. Following the deregulation of the United States air transportation industry in 1978, the airline began a slow and deliberate expansion across the United States beginning in the west and gradually expanding into the eastern portion of the country. Today Southwest Airlines serves 62 cities and carried almost 90 million passengers in 2005.

Between 2000 and 2004, Southwest Airlines began service at four new airports: Buffalo, Albany, West Palm Beach, and Norfolk. Southwest Airlines entered the fewest number of new airports of the three carriers examined. This can be attributed to the carrier's conservative expansion strategy and Southwest Airline's already mature network, which allowed the carrier to focus expansion into new markets from airports the carrier was already providing service. Table 2 shows that in the 15 markets the carrier entered during this time period, the Southwest Effect was observed in all 15. The carrier became the leading passenger carrier in 14 of the 15 markets, Buffalo-Orlando being the exception. Southwest Airlines was also the fare leader in 11 of the 15 markets. One key impact Southwest has had in all of the markets it entered during this time period (and

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the majority of the markets the carrier has entered) is the ability to grow the market. The least significant increase in passenger enplanements was 25% in the Buffalo-Orlando market. This relatively "small" change in enplanements can be attributed to JetBlue having been in the market for the previous six months and stimulating the ultra-cost sensitive passengers.

(For tables 2 through 4, the following industry airline codes are abbreviated: AA=American, CO=Continental, UA= United, DL= Delta, WN =Southwest, US=US Airways, NW=Northwest, NJ=Vanguard, J6= JetBlue, FL= AirTran, JI= Midway Airlines, FR (Should be F9) = Frontier, HP= America West, NK=Spirit, TZ= American Trans Air; XX= Carrier unknown)

Table 2
Markets Entered by Southwest

		PASSENGER PRIOR	PASS YR LATER	FARE PRIOR	FARE YR LATER	% Fare Change	% Pass Change
ALB/BWI	US	653	823	211	60	-71.56	26.03
	WN	0	4242	0	50	0.00	0.00
		653	5065	206	52	-74.76	675.65
ALB/MCO	DL	2256	557	119	100	-15.97	-75.31
	UA	350	188	115	123	6.96	-46.29
	US	2585	3322	114	99	-13.16	28.51
	WN	0	4416	0	90	0.00	0.00
		5191	8483	116	95	-18.10	63.42
ALB/LAS	AA	235	155	150	140	-6.67	-34.04
	CO	92	92	185	152	-17.84	0.00
	DL	174	122	174	183	5.17	-29.89
	NW	131	88	222	144	-35.14	-32.82
	UA	148	291	176	134	-23.86	96.62
	US	115	235	150	143	-4.67	104.35
	WN	0	1574	0	128	0.00	0.00
		895	2557	173	135	-21.97	185.70
BUF/BWI	CO	41	0	95	0	-100.00	-100.00
	US	1023	1240	181	62	-65.75	21.21
	WN	0	8014	0	46	0.00	0.00
		1064	9254	174	49	-71.84	769.74
BUF/LAS	AA	513	383	154	120	-22.08	-25.34
	CO	443	383	135	97	-28.15	-13.54
	DL	105	156	128	109	-14.84	48.57
	NW	156	257	220	104	-52.73	64.74
	UA	333	699	182	96	-47.25	109.91
	US	405	355	126	105	-16.67	-12.35
	WN	0	1780	0	112	0.00	0.00

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	NJ	0	176	0	102	0.00	0.00
		1955	4189	153	107	-30.07	114.27
BUF/MCO	J6	245	188	107	109	1.87	-23.27
	CO	178	187	98	76	-22.45	5.06
	DL	452	684	93	75	-19.35	51.33
	FL	450	315	98	86	-12.24	-30.00
	JI	304	84	93	72	-22.58	-72.37
	NW	117	239	97	60	-38.14	104.27
	UA	317	142	76	72	-5.26	-55.21
	US	2859	2400	85	70	-17.65	-16.05
	WN	0	1922	0	74	0.00	0.00
		4922	6161	89	74	-16.85	25.17
BUF/PHX	AA	247	215	216	124	-42.59	-12.96
	CO	192	217	128	87	-32.03	13.02
	DL	98	173	132	95	-28.03	76.53
	NW	217	335	217	93	-57.14	54.38
	UA	176	107	192	135	-29.69	-39.20
	US	289	353	203	101	-50.25	22.15
	WN	0	1208	0	111	0.00	0.00
		1219	2608	186	106	-43.01	113.95
PBI/BWI	DL	179	280	150	137	-8.67	56.42
	US	2127	1573	121	107	-11.57	-26.05
	WN	0	2473	0	100	0.00	0.00
		2306	4326	124	105	-15.32	87.60
PBI/BNA	DL	566	221	124	126	1.61	-60.95
	US	84	30	121	109	-9.92	-64.29
	WN	0	1023	0	92	0.00	0.00
		650	1274	123	99	-19.51	96.00
PBI/MCO	DL	266	139	136	105	-22.79	-47.74
	XX	102	80	80	80	0.00	-21.57
	WN	0	285	0	45	0.00	0.00
		368	504	120	65	-45.83	36.96
PBI/TPA	DL	85	68	109	73	-33.03	-20.00
	US	700	112	112	50	-55.36	-84.00
	XX	382	32	90	90	0.00	-91.62
	WN	0	2041	0	49	0.00	0.00
		1167	2253	105	50	-52.38	93.06
ORF/BWI	US	712	100	183	104	-43.17	-85.96
	WN	0	1786	0	52	0.00	0.00
		712	1886	183	55	-69.95	164.89
ORF/JAX	DL	583	274	113	86	-23.89	-53.00

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	JI	208	0	79	0	-100.00	-100.00
	US	532	543	104	85	-18.27	2.07
	WN	0	1525	0	68	0.00	0.00
		1323	2342	104	74	-28.85	77.02
ORF/MCO	DL	765	621	99	79	-20.20	-18.82
	JI	55	0	97	0	-100.00	-100.00
	UA	82	0	85	0	-100.00	-100.00
	US	923	519	94	76	-19.15	-43.77
	WN	0	2855	0	61	0.00	0.00
		1825	3995	96	66	-31.25	118.90
ORF/LAS	AA	201	198	140	110	-21.43	-1.49
	CO	90	134	174	139	-20.11	48.89
	DL	396	316	169	156	-7.69	-20.20
	NW	36	41	217	170	-21.66	13.89
	TW	142	0	183	0	-100.00	-100.00
	UA	112	161	179	156	-12.85	43.75
	US	193	247	133	121	-9.02	27.98
	WN	0	962	0	132	0.00	0.00
		1170	2059	163	135	-17.18	75.98

Frontier Airlines

The first Frontier Airlines was a victim of the merger mania that swept the airline industry following deregulation in 1978. Present day Frontier Airlines began service in 1994 with regional service to cities in North Dakota and Montana from its Denver base. The carrier was flexible enough to realize that its original strategic plan to serve these regional destinations was not a profitable one and changed its focus to that of a low cost hub and spoke carrier, using Denver as its hub. This allowed Frontier Airlines to be in direct competition with United's hubbing operations at the airport.

Table 3 illustrates that in 13 of the 15 markets in which the carrier began non-stop service, the Southwest Effect was observed, though not to the same degree as is seen in those markets entered by Southwest during the same time period. An explanation for the lack of Southwest Effect in one of the markets the carrier entered, Denver, CO (DEN) to Arlington, VA (DCA), can be attributed to two external factors: the airport having operational restrictions on service limiting the number of flights Frontier or any other carrier could fly and the impact of 9/11 at the airport having an influence on third quarter 2001 figures. The second market not to experience the effect was DEN to Tampa, Fl (TPA). The fare change was a relatively small five percent while the passenger growth was also relatively small at four and a half percent. Also of note outside of United, which increased enplanements by 24%, is all the other carriers in the market lost enplanements which appear to have been acquired by Frontier. In this case, it appears the carrier did not grow the market as much as its non-stop service attracted

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passengers from other carriers that transported the passengers through their hubs before flying them to their final destination.

Frontier is the fare leader in only four of the 15 markets it entered during the study time period. This is due to increased rivalry the carrier faces in a majority of the markets it serves. The bulk of these carriers are flying passengers through their hubs instead of providing non-stop service for the markets in question. Passengers who fly on non-stop service usually pay a premium in comparison to those passengers who travel on one or more stop itineraries in the same market. If the analysis shifts to comparing Frontier versus United the results are different. In 14 of the 15 markets where the two airlines offer non-stop service, Frontier is the fare leader; however, it is only the passenger leader in two of the 15. A rationalization for this difference is Frontier did not offer as many flights in the market as United, leading to the smaller number of passengers carried for Frontier. While the carrier uses a hub and spoke operational network focusing on Denver, it is not on the same scale and scope as United's, leading to fewer flights offered in a majority of the markets the carriers compete directly.

Table 3
Markets Entered by Frontier

		PASS PRIOR	PASS YR LATER	FARE PRIOR	FARE YR LATER	%Pass Change	%Fare Change
DEN/MCI	NJ	4708	2546	96	93	-45.92	-3.13
	UA	3580	4274	205	142	19.39	-30.73
	F9	0	2782	0	110	0.00	0.00
		8288	9602	143	121	15.85	-15.38
DEN/DCA	AA	1429	371	87	124	-74.04	42.53
	CO	308	536	111	103	74.03	-7.21
	DL	218	294	211	160	34.86	-24.17
	NW	450	572	122	122	27.11	0.00
	TW	318	361	112	110	13.52	-1.79
	TZ	204	187	165	170	-8.33	3.03
	UA	601	470	195	204	-21.80	4.62
	US	561	1292	123	100	130.30	-18.70
	F9	0	1036	0	195	0.00	0.00
		4089	5119	126	140	25.19	11.11
DEN/IAH	AA	653	340	191	102	-47.93	-46.60
	CO	5023	5773	263	144	14.93	-45.25
	UA	3796	3641	212	128	-4.08	-39.62
	FR	0	987	0	115	0.00	0.00
		9472	10741	234	135	13.40	-42.31
DEN/RNO	AA	118	0	89	0	-100.00	-100.00
	DL	301	121	173	120	-59.80	-30.64
	HP	408	149	138	144	-63.48	4.35
	UA	967	1814	205	121	87.59	-40.98
	F9	0	1209	0	107	0.00	0.00
		1794	3293	177	117	83.56	-33.90
DEN/AUS	AA	653	399	147	127	-38.90	-13.61

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	CO	344	197	176	121	-42.73	-31.25
	DL	134	120	140	116	-10.45	-17.14
	NJ	335	94	140	122	-71.94	-12.86
	UA	1678	1798	183	139	7.15	-24.04
	F9	0	1575	0	122	0.00	0.00
		3144	4183	166	127	33.05	-23.49
DEN/MSY	AA	157	227	138	85	44.59	-38.41
	CO	560	223	124	155	-60.18	25.00
	DL	129	368	201	84	185.27	-58.21
	NJ	589	0	140	0	-100.00	-100.00
	NW	150	113	154	145	-24.67	-5.84
	TW	102	0	107	0	-100.00	-100.00
	UA	1659	1670	179	147	0.66	-17.88
	F9	0	1398	0	123	0.00	0.00
		3346	3999	163	127	19.52	-22.09
DEN/SJC	AA	1399	179	151	98	-87.21	-35.10
	DL	119	115	171	102	-3.36	-40.35
	HP	178	379	137	108	112.92	-21.17
	UA	3259	4023	239	175	23.44	-26.78
	F9	0	917	0	139	0.00	0.00
	XX	0	466	0	174	0.00	0.00
		4955	6079	181	165	22.68	-8.84
DEN/FLL	AA	417	755	122	96	81.06	-21.31
	CO	451	272	165	117	-39.69	-29.09
	DL	1498	659	132	112	-56.01	-15.15
	NJ	84	0	161	0	-100.00	-100.00
	NW	146	0	112	0	-100.00	-100.00
	TW	169	0	184	0	-100.00	-100.00
	TZ	74	0	173	0	-100.00	-100.00
	UA	196	148	162	152	-24.49	-6.17
	US	117	110	142	105	-5.98	-26.06
	F9	0	1753	0	115	0.00	0.00
	NK	0	3419	0	113	0.00	0.00
		3152	7116	143	113	125.76	-20.98
DEN/SMF	DL	279	123	114	125	-55.91	9.65
	HP	267	234	129	138	-12.36	6.98
	UA	2634	3055	222	159	15.98	-28.38
	SW	0	1335	0	128	0.00	0.00
		3180	4747	205	148	49.28	-27.80
DEN/ONT	DL	116	173	135	102	49.14	-24.44
	HP	311	303	180	135	-2.57	-25.00
	UA	1933	2075	183	150	7.35	-18.03
	F9	0	34	0	94	0.00	0.00
	XX	0	66	0	151	0.00	0.00
		2360	2651	180	144	12.33	-20.00
DEN/BOI	DL	263	172	197	128	-34.60	-35.03
	UA	1099	1140	200	117	3.73	-41.50
	SW	0	724	0	82	0.00	0.00

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		1362	2036	199	105	49.49	-47.24
DEN/TPA	AA	803	469	99	99	-41.59	0.00
	CO	462	316	160	157	-31.60	-1.88
	DL	1774	801	95	117	-54.85	23.16
	NW	342	288	115	118	-15.79	2.61
	UA	1988	2468	199	165	24.14	-17.09
	US	371	276	101	117	-25.61	15.84
	F9	0	1385	0	151	0.00	0.00
		5740	6003	139	146	4.58	5.04
DEN/RSW	AA	131	113	105	105	-13.74	0.00
	CO	163	123	135	128	-24.54	-5.19
	DL	286	231	167	231	-19.23	38.32
	NW	33	38	139	132	15.15	-5.04
	TZ	26	16	162	173	-38.46	6.79
	UA	97	107	177	156	10.31	-11.86
	US	57	99	157	87	73.68	-44.59
	SW	0	478	0	135	0.00	0.00
	FL	0	78	0	141	0.00	0.00
		793	1283	150	131	61.79	-12.67
DEN/OKC	AA	200	119	137	124	-40.50	-9.49
	DL	91	0	138	0	-100.00	-100.00
	UA	1500	1297	186	161	-13.53	-13.44
	XX	0	1221	0	114	0.00	0.00
		1791	2637	177	138	47.24	-22.03
DEN/TUS	DL	115	39	107	114	-66.09	6.54
	HP	480	445	145	120	-7.29	-17.24
	UA	1001	734	167	142	-26.67	-14.97
	XX	0	1417	0	118	0.00	0.00
		1596	2635	153	124	65.10	-18.95

JetBlue Airlines

JetBlue was created by David Neeleman, a former Southwest employee and Morris Air CEO, in 1999 and began service from New York's JFK airport the following year. JetBlue was able to start up service at JFK after securing 75 take-off and landing slots at the slot constrained airport. The ability to offer service from JFK allows the carrier an advantage as it is somewhat protected from other low cost carrier competition at the airport, as well as other airline competition due to the operational restriction in place at JFK.

Table 4 demonstrates that JetBlue's entry into new markets during the study time period created an effect very similar to that of the Southwest Effect. In all 17 of the markets entered, the number of passengers carried increased while the fares in these same markets decreased; though in two of the markets, JFK to New Orleans, LA (MSY) and JFK to Palm Beach, Fl (PBI), the percentage change was less than one percent. Jet Blue is the fare leader in 12 of the 17 markets it entered and the passenger carried leader in 16 of those markets as well.

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One of the similarities between Southwest and JetBlue is their impact in smaller markets. A breakdown of regional airports in New England served by JetBlue reveals that the introduction of low cost service dramatically grows the traffic in the market while reducing fares. Traffic in the JFK to Buffalo, NY (BUF) market increased 1209% while fares decreased 20%, in the JFK to Rochester, NY (ROC) market traffic increased 1106% and fares decreased 49%, JFK to Burlington, VT (BTV) traffic increased 9868% and fares decreased 38%, and in the JFK to Syracuse, NY (SYR) market passenger numbers increased almost 911% while fares decreased almost 53%. JetBlue's effect in markets entered between 2000 and 2004 demonstrates similar characteristics in markets entered by Southwest, such as sustained lower average fares and increased passenger enplanements. JetBlue also appears to be growing the markets it enters, similar to Southwest, instead of passengers in the market simply switching air transportation providers.

After initial analysis, it appears the Southwest Effect is not a phenomenon unique to Southwest Airlines, but also appears in markets entered by other low cost carriers, though to varying degrees. The effect seems to be most prevalent in markets where one of the endpoints is poorly served by the incumbent carriers. What is meant by poorly served is defined as either the market is a monopoly or duopoly or the carriers serving the market are not offering non-stop service. Due to the relatively small size of the market carriers are flowing passengers through their hubs before delivering them to their final destinations. An example of the first poorly served market would be the Albany, NY (ALB) to Baltimore, MD/Washington, DC (BWI) market, where US Airways had a monopoly in the market until Southwest entered and as expected, the Southwest Effect emerged. The same situation is seen after JetBlue's entry into the JFK to BUF or JFK to BTV markets. As discussed in the final section, an expansion of the analysis into all of the airports serving the New York City area will provide a clearer picture of the effect in these markets.

In the second poorly serviced case, the Norfolk, VA (ORF) to Jacksonville, FL (JAX) market is an example where Southwest became the only non-stop carrier. The other carriers in the market, US Airways (Charlotte) and Delta (Atlanta), carried the passengers through their respective hubs with passengers going to other destinations. They then routed them via Charlotte, NC (CLT)/Atlanta, GA (ATL) to JAX or CLT/ATL to ORF flights (depending on trip direction) with passengers from other origins whose final destination was either ORF or JAX. JetBlue has markets, JFK to Ontario, CA (ONT) and JFK to Long Beach, CA (LGB) for example, that are similar except on a coast to coast scale and the results are similar. This example is a key to the success of Southwest Airlines and to the other low cost carriers whose markets show the Southwest Effect. The carriers are offering non-stop services in markets that other carriers in the market are strategically unable or unwilling to offer because of their dependence on structure (hub and spoke system) and the size of the markets in question.

Frontier's impact has not been as dramatic as the other two carriers examined; however, this is attributable to the competition it faces on every route entered during the study period from United, the largest carrier at Denver. The effect Frontier has is to

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provide stiff competition to United while not becoming the market leader in terms of passengers carried in a number of markets. However, United lowered fares in 14 of the 15 markets examined in response to Frontier's entry. Other carriers who serve these markets with connecting service are also significantly impacted, with a majority of the carriers losing passengers despite a lowering of their fares. There are two issues at play: The first is other carriers are only able to lower their fares to a certain level because they need to keep seats open for passengers going to other destinations. Filling the seats with lower fared passengers would lower their overall revenue. Secondly, research shows passengers prefer non-stop service in a market and will pay a premium for such, so even if these other carriers could lower their fares they would need to lower them significantly more than United or Frontier.

Table 4
Markets Entered by JetBlue

		PASSENGER PRIOR	PASSENGER YR LATER	FARE PRIOR	FARE YR LATER	%Pass Change	%Fare Change
JFK/FLL	DL	4221	4839	112	103	14.64	-8.04
	FF	2912	0	93	0	-100.00	-100.00
	TW	1929	682	123	111	-64.64	-9.76
	J6	0	10222	0	109	0.00	0.00
		9062	15743	119	111	73.73	-6.72
JFK/BUF	AA	704	1108	113	78	57.39	-30.97
	B6	0	8112	0	62	0.00	0.00
		704	9220	84	67	1209.66	-20.24
JFK/TPA	DL	1227	1817	116	95	48.08	-18.10
	TW	2422	406	104	84	-83.24	-19.23
	J6	0	4931	0	95	0.00	0.00
		3649	7154	114	105	96.05	-7.89
JFK/MCO	DL	1702	4306	129	94	153.00	-27.13
	TW	6438	5216	107	100	-18.98	-6.54
	JB	0	5358	0	101	0.00	0.00
		8140	14880	112	99	82.80	-11.61
JFK/ONT	AA	16	0	239	0	-100.00	-100.00
	DL	70	55	180	142	-21.43	-21.11
	HP	164	126	206	183	-23.17	-11.17
	TW	20	0	200	0	-100.00	-100.00
	UA	78	130	292	186	66.67	-36.30
	J6	0	3549	0	157	0.00	0.00
		348	3860	221	159	1009.20	-28.05
JFK/OAK	AA	7	141	597	125	1914.29	-79.06
	HP	147	116	238	213	-21.09	-10.50
	UA	87	124	331	212	42.53	-35.95
	J6	0	4170	0	171	0.00	0.00
		241	4551	279	172	1788.38	-38.35
JFK/ROC	AA	452	740	133	72	63.72	-45.86
	DL	58	0	110	0	-100.00	-100.00
	TW	28	0	153	0	-100.00	-100.00

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	J6	0	5749	0	66	0.00	0.00
		538	6489	132	67	1106.13	-49.24
JFK/BTV	AA	19	0	110	0	-100.00	-100.00
	JB	0	1894	0	68	0.00	0.00
		19	1894	110	68	9868.42	-38.18
JFK/PBI	DL	97	111	108	104	14.43	-3.70
	TW	1637	0	103	0	-100.00	-100.00
	J6	0	3859	0	102	0.00	0.00
		1734	3970	103	102	128.95	-0.97
JFK/SLC	DL	2661	2073	276	227	-22.10	-17.75
	HP	187	103	189	180	-44.92	-4.76
	TW	100	55	149	143	-45.00	-4.03
	J6	0	1823	0	137	0.00	0.00
		2948	4054	268	184	37.52	-31.34
JFK/RSW	AA	53	39	113	96	-26.42	-15.04
	DL	74	72	125	110	-2.70	-12.00
	J6	0	1704	0	98	0.00	0.00
		127	1815	119	98	1329.13	-17.65
JFK/SEA	AA	63	80	215	168	26.98	-21.86
	DL	827	984	343	216	18.98	-37.03
	HP	141	73	191	175	-48.23	-8.38
	NW	129	0	212	0	-100.00	-100.00
	TW	185	0	165	0	-100.00	-100.00
	UA	1317	1511	367	226	14.73	-38.42
	J6	0	1847	0	136	0.00	0.00
		2662	4495	325	184	68.86	-43.38
JFK/SYR	AA	248	148	137	82	-40.32	-40.15
	J6	0	2359	0	63	0.00	0.00
		248	2507	136	64	910.89	-52.94
JFK/DEN	AA	37	114	220	139	208.11	-36.82
	DL	338	54	156	155	-84.02	-0.64
	HP	32	37	196	205	15.63	4.59
	NW	52	39	177	130	-25.00	-26.55
	TW	201	0	151	0	-100.00	-100.00
	UA	75	107	430	344	42.67	-20.00
	J6	0	1723	0	131	0.00	0.00
		735	2074	187	145	182.18	-22.46
JFK/MSY	AA	80	128	125	125	60.00	0.00
	CO	82	0	129	0	-100.00	-100.00
	DL	204	224	131	119	9.80	-9.16
	NW	30	51	103	93	70.00	-9.71
	TW	250	0	93	0	-100.00	-100.00
	J6	0	3469	0	111	0.00	0.00
		646	3872	114	113	499.38	-0.88
JFK/LGB	HP	17	229	275	148	1247.06	-46.18
	J6	0	8541	0	170	0.00	0.00
	AA	0	713	0	142	0.00	0.00
		17	9483	275	167	55682.35	-39.27

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JFK/LAS	AA	217	521	128	134	140.09	4.69
	DL	744	661	105	117	-11.16	11.43
	HP	9778	9673	131	164	-1.07	25.19
	N7	6540	0	146	0	-100.00	-100.00
	UA	1195	451	107	156	-62.26	45.79
	J6	0	9852	0	145	0.00	0.00
		18474	21158	133	153	14.53	15.04

Implications for Managers

Management will need to stay advised of new, low cost competitors entering their respective market. From the evidence presented in this research, one implication for managers is that there will be an increase in sales. Knowing this, it would be particularly important to be informed of what type of increase the overall market will be having, and how much of that increase the individual firm will bear. If the firm retains production at previous levels, the new customer need entering the market will be unmet, resulting in customers seeking competitor products or services.

Another implication for managers from this research regards the overall decrease in prices once a low cost competitor enters the market. This project demonstrated that as a low cost airline moved into a new competitive environment, there was a resulting decrease in the average fare sold. To extrapolate this to other arenas, managers need to first be aware of competition moving into their jurisdiction. If this new competitor is low cost in strategy, our evidence would suggest that the overall price of goods/services in the marketplace will fall. Individual managers need to realize this and take actions to take advantage of this occurrence. This effect would reach each competitor as the overall price decrease of the marketplace will place stricter demand on efficiencies in the workplace. Companies will need to finds ways to stay price competitive in the marketplace, regardless of overall positioning.

A last implication for managers resulting from our findings is that when a low cost competitor enters a market, customers are mobile and are quite adept at moving to lower priced goods and services. Thus, even if the new competitor is not in the immediate competitive vicinity, customers are able and willing to move to lower priced goods and services. Hence, without a change, a loss a customers can become a reality.

Future Analysis

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The Southwest Effect, as measured by a significant increase in the number of passengers traveling in the market and a noteworthy decrease in the average fare paid by travelers in the market, was shown to occur in a majority of the markets examined to various degrees. The variation, as seen in this research, is dependent upon strategic factors such as the type of market entered, the operational structure of the carrier, and the competition in the market. Generally, Southwest enters markets that either qualify as leisure markets or markets that have less than optimal competition, both of which allow the Southwest Effect to emerge. JetBlue operates in markets similar to Southwest in terms of competition levels and also in markets that were not previously non-stop

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markets from JFK. Frontier faces a different set of circumstances than the other two airlines examined. By operating in direct competition with United at its hub at Denver, the carrier faces stricter competition, but the carrier still shows elements of the Southwest Effect in markets it enters. Frontier's effect is seen in reduced passenger numbers for other carriers besides United and a reduction in fares in those markets, though United still appears to the fare leader in a majority of the markets examined. The research conducted here is a first step in determining whether the Southwest Effect is a phenomenon unique to Southwest Airlines or whether the effect is attributable to any low cost carrier that enters a market. One of the next steps in this research area is to expand the carriers examined to include other low cost carriers and to include historical data from deregulation to the present. This all-encompassing view is beyond the scope of this paper due to data and time constraints.

Another area that needs expansion is on the secondary Southwest Effect mentioned earlier in this paper. The analysis conducted here focused on only those markets directly served by the carriers used in this research. It would be extremely interesting to see, for example, if JetBlue's effect could be seen to be affecting other New York area airports in the same way that Southwest has been shown to affect nearby markets that the carrier does not serve directly.

A third sub-topic ripe for investigation to help in the understanding of the Southwest Effect would be examination of the entry of low cost carriers into markets that are already served by an established low cost carrier. An example of this would be the impact of Southwest Airlines entering Denver and the effect this entry had on Frontier, which is the established low cost carrier at the airport.

Lastly, it would be interesting to evaluate substitutes for air travel and monitor their passenger levels, revenues, etc. This would be a much greater endeavor, as automobile, train, bus, and other modes of transportation would need to be analyzed. However, it would enable valuable analysis of the Southwest Effect from not only rivals, but substitutes as well.

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