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HOUSING VALUATION: AN ANALYSIS OF HOUSING VALUATION CONCERNING SKI RESORT TOWNS

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ABSTRACT

On ski resort, ski lifts and various forms of infrastructure being built effect the valuation of the homes around the resort. These new structures being built on the ski resort are classified as externalities, as the homes themselves do not benefit directly from their construction, but do benefit indirectly. The following paper analyzes two specific externalities and how they relate to housing valuation: ski lifts and average annual snowfall. These two factors are analyzed with how they correlate to housing valuation using a hedonic pricing analysis. Specifically, this hedonic analysis will determine which variable correlates most closely with housing valuation, and therefore which variable investors should look more closely at when determining which real estate market to look at. The results of this study will help investors better realize what markets to invest into, and what factors impact house prices.

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Chapter 1

Project Overview

Hypothesis

The purpose of this project is to determine whether housing valuation in ski resort towns is more closely correlated to the amount of annual snowfall that a ski resort receives, or to the amount of lifts that a ski resort has built on itself. Through this analysis, there ought to be no doubt that the amount of annual snowfall is a larger driver of housing list prices than the amount of ski lifts on the ski resort in the town that the house is in. This project will rely on regression analysis, which will lead to an equation, if the hypothesis is true, the equation will resemble the following:

Figure 1. Hypothesis Equation

$$Y = \beta_0 + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \varepsilon$$

The beta variables will describe various housing description values, including number of bedrooms, number of bathrooms, square footage of the house, annual snowfall at the house, and the total lifts at the resort that the house is located on. The variables describing the house lend themselves to a hedonic analysis background, allowing houses to be compared at a somewhat even playing field. In this way, the two variables that are critical to this study will be responsible for the changes in housing value, rather than well-known house characteristics. For the hypothesis to be accepted, the variable of annual snowfall must be both statistically significant, and give the entire equation a higher marginal R-value than the inclusion of the total lifts variable.

Methodology

To determine this, a regression analysis will be used on a hedonic pricing model for homes in ski resort towns. However, it is important to understand a few concepts before diving into the regression analysis. First, the concept of externalities and how they relate to housing valuations. Second, the curious concept of demand elasticity, and why it is especially relevant concerning ski resort housing.

After explaining the economic theories that affect housing values, this project will proceed with giving new information to the world of housing valuations and what affect them. The data that goes into the regression analysis will be described, first as it relates to the ski resorts themselves, and second, how the data relates to the actual regression performed. Finally, the results of the regression analysis will be displayed, with a discussion concerning the takeaways to be garnered from the analysis. If a regression is run that results in the variable of annual snowfall being proven to be both statistically significant, and having a higher R Square value than a regression run using only the number of lifts on the resort, then the hypothesis would be proven correct.

Chapter 2

Previous Research

Externalities and Housing Valuation

An externality is a cost or benefit that affects a party that did not choose to incur that cost or benefit. At a ski resort, ski lifts and various forms of infrastructure being built effect the valuation of the homes around the resort and can thus be classified as externalities. These new structures being built on the ski resort are classified as externalities, as the homes themselves do not benefit directly from their construction, but do benefit indirectly. However, measuring the effects of these externalities on the valuation of the surrounding homes requires understanding three important concepts. Specifically, one must understand how to measure externalities and their effects on housing valuation. A general understanding of how externalities affect housing prices is important to gain, as lifts at ski resorts and average annual snowfall impact housing valuation in different ways.

Now that calculating demand elasticity is understood, one must understand how externalities play a part in housing valuation. Within the price of a house, both negative and positive externalities are built-in. Externalities explain the concept of why, if two houses were the exact same build, they may be valued monetarily differently. They may be valued positively by: proximity to a local park, quality of the local school system, and proximity to public transportation. Houses may receive a downgrade in valuation due to externalities such as: neighborhood crime, close proximity to an airport, and amount of pollution in the area.

D. Efthymiou and C. Antoniou analyzed Athens to understand how transportation infrastructure effects house prices and apartment rental rates. They felt that Athens was a terrific case study, as it has been updated with various new methods of transportation and transportation infrastructure for the public since the Olympics were held there in the summer of 2004. Greece has also implemented traffic laws to reduce the vast amount of congestion in the center of Athens. They compiled their data into 15 separate categories: price; type of house; square meters; number of bedrooms; floor; year of construction; availability of independent heating; air-conditioning; garden; fire place; parking availability; type of parking; type of view; orientation; geographic location (Efthymiou and Antoniou 6). They were able to compile this information through developing a "web scrapper" for data collection from publically available real estate websites (Efthymiou and Antoniu 6).

Because they were doing a study specifically on the distances from the houses to transportation infrastructure, they used an online portal available through the European Union to compile locations of metro, ISAP, tram, bus, and railway stations, airports, ports, marinas, and the Attica Toll-way (Efthymiou and Antoniu 6). They then reduced noise in their variables by accounting for "population density, percentage of population with high education level (university degree) and percentage of immigrants per municipality" (Efthymiou and Antoniu 6). They were able to sift through and analyze this massive amount of data using the statistical analysis tool R (Efthymiou and Antoniu 7). In the end of their study, they were able to conclude, as expected, that housing valuations did indeed correlate with the availability of transportation infrastructure readily available.

Jean Dubé, Marius Thériault, and Francois Des Rosiers conducted a similar study, studying the effect of commuter rail accessibility on housing valuation, specifically looking at the distance that the effect was noticeable. In order to accomplish this study, they focused on home re-sales over a 17 year period, making it possible to easily understand the increase in prices, as a home was simply compared to itself in the previous transaction. They were able to find that the effect of the commuter rail was only statistically significant if the rail was located within a 12 minute driving distance from the house (Dubé, Thériault, and Des Rosiers 11). In fact, the effect showed diminishing returns based on how far the given house was from the commuter rail. The premium for a house followed the following structure: beginning at a 6.2% premium if the property was within a two minute drive of the commuter rail, dropping to 4.7% if the drive would be more than two minutes, but less than four, dropping even more to a 3.7% premium if the drive was less than six minutes but more than four, before finally becoming insignificant if the drive was 12 minutes or greater (Dubé, Thériault, and Des Rosiers 11). The diminishing premium of housing prices supports the theory that externalities do have a diminishing effect over distance.

One interesting piece of information that Dubé, Thériault, and Des Rosiers noted in the conclusion to their study, is that "improvements in rail service tend to benefit residents with a higher income more, implying a regressive effect" (Dubé, Thériault, and Des Rosiers 14). While their study did not focus on this point, it is important to note, because if a house's valuation is raised, it will require a buyer with a higher level of income to purchase the house than was required previously. This could mean that a segment of the population is able to benefit from infrastructure externalities more than other segments of the population.

Measuring Demand Elasticity in Ski Resort Towns

Demand elasticity is the second thing that one must understand when overviewing real estate around ski resorts. In order to measure demand elasticity, demand elasticity must be defined. For housing, according to Green and Malpezzi, demand elasticity can be defined as the ratio between the percentage change in housing demanded and the percentage change in income (Green and Malpezzi 9). However, because income is not an easy input to measure, there have been two major schools of thought on how to measure it by proxy. One way of measuring income is to use regression to predict income based on age, job status, and other life cycle variables (Green and Malpezzi 9). An alternate way to measure income is through using total consumption as a rough proxy to total income (Green and Malpezzi 10). While income through this second method is estimated, income can be determined relatively confidently.

While studies have shown that when looking at the United States' housing market as a whole, demand is inelastic (Green and Malpezzi 11). However, studies conducted specifically concerning ski resorts show that demand is incredibly elastic (Wheaton 11). Specifically, Wheaton analyzed Loon Mountain, a ski resort in New Hampshire, and the condominium market around the mountain. He gained the listing of sales from tax records, brokers, and online services. Wheaton then divided all of his transaction data of homes into twenty three different "types", with each type involving specific square footage, bedrooms, baths, and amenities, so that the differences in the houses were compiled into a hedonic equation (Wheaton 3). In compiling his numbers, he also removed the variable of inflation, comparing all of the sales on both a nominal and real dollar value. He was able to use this Hedonic method of analyzing his data due to a large amount of data mined. After compiling these numbers, he was able to measure the elasticity of the demand for the market of condominiums at Loon Mountain, New Hampshire, finding that the real price of a condominium in Loon Mountain purchased in 1975 had actually decreased by 40%.

Overall, Wheaton's study showed that supply at Loon Mountain for condominiums was perfectly elastic in real price levels, and that the market was "prone to overbuild every time positive demand shocks occur" (Wheaton 12). However, Wheaton is unsure as to why this reaction takes place, especially in the face of data that shows that investment in condominiums at Loon Mountain is a bad one. Wheaton suggests that "the opportunity value for the extensive amount of open land in northern New England, mostly forestry and agriculture, has been declining in real [if not nominal] terms (Wheaton 12). This would also lead one to believe that Loon Mountain would not necessarily be a good representative of the entire ski resort second home market, as factors are very different in New England than in other parts of the country, specifically the willingness of landowners to use their land as a resort rather than any alternative.

Wheaton also gives an answer as to why developers continue to develop condominiums at Loon Mountain even in the face of financial data that shows the investment, in the long run, to be a losing investment. Wheaton states that developers may simply be looking to sell their condominiums in the short term "boom" that the condominium market experiences, giving the developers profit (Wheaton 12). However, the buyers are an enigma. Wheaton suggests that the buyers of most of these second homes are uninformed vacationers (Wheaton 12). However, one could also make the argument that buyers are receiving non-monetary value from these second homes, be that in quality of life, social status, etc. Whatever the case, this effect certainly lends itself to future research.

Chapter 3

Data Set

Overview

It is important to note, before progressing any further, that the reason for analyzing the number of ski lifts on a given ski resort is that these lifts can act as a rough proxy of the amount of development on a given ski resort. This development is what would generate housing value, as an increase in infrastructure around a given home is generally accepted as a positive externality. Given this methodology, in order to gather data to determine whether housing valuation in a ski town is more closely linked to the ski lifts on the mountain or to average annual snowfall, there was first the problem of actually garnering the data. Zillow's database was used to gain housing valuation numbers, as well as descriptive statistics concerning the houses. In order to gain the average annual snowfall data, as well as data on the lifts in place on ski resorts, the online database of ski resorts On the Snow was used.

Ski Resorts Used

In the interest of full disclosure, Table 1 details all of the ski resorts analyzed in this study. They have been organized in alphabetical order, also listing the towns used to garner housing valuation data from.

Table 1. List of All Ski Resorts Analyzed

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Alta Ski Area	Rocky Mountain	Alta	Utah	560
Angel Fire Resort	Rocky Mountain	Angel Fire	New Mexico	210
Arapahoe Basin Ski Area	Rocky Mountain	Keystone	Colorado	350
Aspen/Snowmass	Rocky Mountain	Aspen	Colorado	300
Attitash	Northeast	Bartlett	New Hampshire	120
Beaver Creek	Rocky Mountain	Avon	Colorado	323
Beaver Mountain	Rocky Mountain	Logan	Utah	400
Berkshire East	Northeast	Charlemont	Massachusetts	120
Big Sky Resort	Rocky Mountain	Bozeman	Montana	400
Black Mountain	Northeast	Jackson	New Hampshire	125
Blacktail Mountain Ski Area	Rocky Mountain	Kalispell	Montana	250
Blandford Ski Area	Northeast	Blandford	Massachusetts	50
Bogus Basin	Rocky Mountain	Boise	Idaho	250
Bolton Valley	Northeast	Bolton	Vermont	300
Bousquet Ski Area	Northeast	Pittsfield	Massachusetts	83
Brantling Ski Slopes	Northeast	Sodus	New York	110
Breckenridge	Rocky Mountain	Breckenridge	Colorado	300
Bretton Woods	Northeast	Bretton Woods	New Hampshire	200
Brian Head Resort	Rocky Mountain	Brian Head	Utah	400

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Bridger Bowl	Rocky Mountain	Bozeman	Montana	350
Brighton Resort	Rocky Mountain	Park City	Utah	500
Bristol Mountain	Northeast	Canandaigua	New York	60
Bromley Mountain	Northeast	Peru	Vermont	145
Brundage Mountain Resort	Rocky Mountain	McCall	Idaho	320
Camden Snow Bowl	Northeast	Camden	Maine	69
Cannon Mountain	Northeast	Lincoln	New Hampshire	160
Canyons	Rocky Mountain	Salt Lake City	Utah	355
Catamount	Northeast	Hillsdale	New York	108
Copper Mountain Resort	Rocky Mountain	Frisco	Colorado	285
Cranmore Mountain Resort	Northeast	North Conway	New Hampshire	150
Crested Butte Mountain	Rocky Mountain	Crested Butte	Colorado	300
Crotched Mountain	Northeast	Bennington	New Hampshire	105
Dartmouth Skiway	Northeast	Lyme	New Hampshire	100
Deer Valley Resort	Rocky Mountain	Park City	Utah	300
Diamond Peak	Rocky Mountain	Incline Village	Nevada	300
Dry Hill Ski Area	Northeast	Watertown	New York	125
Durango Mountain Resort	Rocky Mountain	Durango	Colorado	260
Eagle Point	Rocky Mountain	Beaver	Utah	400
Eldora Mountain Resort	Rocky Mountain	Nederland	Colorado	311

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Elko SnoBowl	Rocky Mountain	Elko	Nevada	24
Gore Mountain	Northeast	North Creek	New York	150
Granite Gorge	Northeast	Roxbury	New Hampshire	100
Great Divide	Rocky Mountain	Helena	Montana	150
Greek Peak	Northeast	Cortland	New York	122
Gunstock	Northeast	Gilford	New Hampshire	120
Hickory Ski Center	Northeast	Warrensburg	New York	75
Hogadon	Rocky Mountain	Casper	Wyoming	140
Holiday Mountain	Northeast	Monticello	New York	50
Holiday Valley	Northeast	Ellicotville	New York	180
Holimont Ski Area	Northeast	Ellicotville	New York	180
Howelsen Hill	Rocky Mountain	Steamboat Springs	Colorado	150
Hunter Mountain	Northeast	Hunter	New York	120
Jackson Hole	Rocky Mountain	Jackson	Wyoming	450
Jay Peak	Northeast	Jay	Vermont	377
Jiminy Peak	Northeast	Hancock	Vermont	90
Keystone	Rocky Mountain	Keystone	Colorado	230
Killington Resort	Northeast	Killington	Vermont	250
King Pine	Northeast	Madison	New Hampshire	120
Labrador Mountain	Northeast	Truxton	New York	125

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Loon Mountain	Northeast	Lincoln	New Hampshire	160
Lost Valley	Northeast	Auburn	Maine	50
Loveland	Rocky Mountain	Georgetown	Colorado	400
Mad River Glen	Northeast	Fayston	Vermont	228
Magic Mountain	Northeast	Londonderry	Vermont	150
Magic Mountain Ski Area	Rocky Mountain	Twin Falls	Idaho	180
Maverick Mountain	Rocky Mountain	Polaris	Montana	160
McCauley Mountain Ski Center	Northeast	Old Forge	New York	200
Montana Snowbowl	Rocky Mountain	Missoula	Montana	300
Mount Peter Ski Area	Northeast	Warwick	New York	50
Mount Snow	Northeast	West Dover	Vermont	166
Mount Sunapee	Northeast	Newbury	New Hampshire	100
Mt. Abram Ski Resort	Northeast	Greenwood	Maine	125
Mt. Rose – Ski Tahoe	Rocky Mountain	Reno	Nevada	300
Nashoba Valley	Northeast	Westford	Massachusetts	55
New Hermon Mountain	Northeast	Hermon	Maine	90
Nordic Valley Resort	Rocky Mountain	Eden	Utah	300
Okemo Mountain Resort	Northeast	Ludlow	Vermont	55
Otis Ridge Ski Area	Northeast	Otis	Massachusetts	90

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Pajarito Mountain Ski Area	Rocky Mountain	Los Alamos	New Mexico	163
Park City Mountain Resort	Rocky Mountain	Park City	Utah	360
Pats Peak	Northeast	Henniker	New Hampshire	100
Pebble Creek Ski Area	Rocky Mountain	Inkom	Idaho	250
Peek'n Peak	Northeast	Clymer	New York	225
Pico Mountain	Northeast	Killington	Vermont	250
Plattekill Mountain	Northeast	Roxbury	New York	200
Pomerelle Mountain Resort	Rocky Mountain	Malta	Idaho	500
Powder Mountain	Rocky Mountain	Eden	Utah	500
Powderhorn	Rocky Mountain	Mesa	Colorado	250
Q Burke Mountain Resorts	Northeast	East Burke	Vermont	240
Ragged Mountain Resort	Northeast	Danbury	New Hampshire	100
Red Lodge Mountain	Rocky Mountain	Red Lodge	Montana	250
Red River	Rocky Mountain	Red River	New Mexico	218
Royal Mountain Ski Area	Northeast	Caroga Lake	New York	90
Saddleback Inc	Northeast	Rangeley	Maine	200
Sandia Peak	Rocky Mountain	Albuquerque	New Mexico	49
Schweitzer	Rocky Mountain	Sandpoint	Idaho	300
Shawnee Peak	Northeast	Bridgton	Maine	110
Showdown Montana	Rocky Mountain	White Sulphur Springs	Montana	250

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Silver Mountain	Rocky Mountain	Kellogg	Idaho	300
Silverton Mountain	Rocky Mountain	Silverton	Colorado	400
Sipapu Ski Resort	Rocky Mountain	Vadito	New Mexico	190
Ski Apache	Rocky Mountain	Alto	New Mexico	185
Ski Butternut	Northeast	Great Barrington	Massachusetts	115
Ski Cooper	Rocky Mountain	Leadville	Colorado	260
Ski Granby Ranch	Rocky Mountain	Granby	Colorado	220
Ski Santa Fe	Rocky Mountain	Santa Fe	New Mexico	225
Ski Sundown	Northeast	New Hartford	Connecticut	45
Ski Ward	Northeast	Shrewsbury	Massachusetts	80
Sleeping Giant Ski Resort	Northeast	Shrewsbury	Massachusetts	300
Smugglers' Notch Resort	Northeast	Cambridge	Vermont	322
Snow King Resort	Rocky Mountain	Jackson	Wyoming	300
Snow Ridge	Northeast	Turin	New York	230
Snowbasin	Rocky Mountain	Huntsville	Utah	300
Snowbird	Rocky Mountain	Sandy	Utah	500
Snowy Range Ski & Recreation Area	Rocky Mountain	Laramie	Wyoming	250
Solitude Mountain Resort	Rocky Mountain	Solitude	Utah	500
Song Mountain	Northeast	Tully	New York	125

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
Steamboat	Rocky Mountain	Steamboat Springs	Colorado	352
Stowe Mountain Resort	Northeast	Stowe	Vermont	333
Stratton Mountain	Northeast	Stratton	Vermont	180
Sugarbush	Northeast	Warren	Vermont	262
Sugarloaf	Northeast	Carrabassett Valley	Maine	200
Sun Valley	Rocky Mountain	Ketchum	Idaho	220
Sundance	Rocky Mountain	Sundance	Utah	320
Sunday River	Northeast	Newry	Maine	165
Sunlight Mountain Resort	Rocky Mountain	Glenwood Springs	Colorado	250
Swain	Northeast	Swain	New York	130
Taos Ski Valley	Rocky Mountain	Taos Ski Valley	New Mexico	305
Telluride	Rocky Mountain	Telluride	Colorado	309
Teton Pass Ski Resort	Rocky Mountain	Choteau	Montana	250
Titus Mountain	Northeast	Malone	New York	100
Toggenburg Mountain	Northeast	Fabius	New York	130
Tuxedo Ridge at Sterling Forest	Northeast	Tuxedo Park	New York	36
Vail	Rocky Mountain	Vail	Colorado	350
Wachusett Mountain Ski Area	Northeast	Princeton	Massachusetts	100
Waterville Valley	Northeast	Waterville Valley	New Hampshire	148

Ski Resort	Location Categorization	Town	State	Snowfall (Inches)
West Mountain	Northeast	Queensbury	New York	80
White Pine Ski Area	Rocky Mountain	Pinedale	Wyoming	150
Whitefish Mountain Resort	Rocky Mountain	Whitefish	Montana	300
Wildcat Mountain	Northeast	Jackson	New Hampshire	200
Willard Mountain	Northeast	Greenwich	New York	80
Windham Mountain	Northeast	Windham	New York	100
Winter Park Resort	Rocky Mountain	Winter Park	Colorado	354
Wolf Creek Ski Area	Rocky Mountain	Pagosa Springs	Colorado	430
Woods Valley Ski Area	Northeast	Westernville	New York	180

Ski Resort Lifts

The lifts garnered for the regression analysis were gained from 145 unique ski resorts. In order to gain a better survey of the entire ski resort housing market, resorts from both the northeast region, classified as located in the United States of America, East of the Mississippi River and North of Pennsylvania, and also the Rocky Mountain Region, classified as located in the Rocky Mountain range of the United States of America. The most important numbers to examine in terms of their effect on the regression analysis, to be explained later in this report, are the mean and median numbers of ski lifts.

Table 2. Descriptive Statistics of All Ski Lifts

Descriptive Statistic	Number
Mean	8.88
Standard Error	0.56
Median	7.00
Mode	5.00
Standard Deviation	6.77
Sample Variance	45.80
Kurtosis	5.68
Skewness	2.11
Range	42.00
Minimum	1.00
Maximum	43.00
Sum	1,288.00
Count	145.00

While this data does give us a relatively basic idea of the development on a ski resort, it could also be helpful to see a breakdown of the types of lifts at these resorts. All ski lifts at ski resorts share a common goal: to move people from the bottom of a certain slope to the top of it. However, there are different types of ski lifts designed to accomplish this task differently. The easiest way to discern what type a ski lift one could be looking at is to count how many people can fit on the lift as it takes people up the slope of the mountain. Lifts range from a gondola, tasked with taking as many as 16 people from the bottom of a slope to the top of it. Gondolas at ski resorts are lifts that are enclosed and protect skiers and snowboarders from the elements of the winter weather. A picture of a gondola is shown in Appendix A, in Figure 2.

On the other end of the spectrum, the surface lift is only tasked with bringing one person at a time to the top of the hill. A surface lift is given its namesake because the person being transported up the hill never actually leaves the ground. Surface lifts include magic carpets (shown in Appendix A, Figure 3) poma lifts (as shown in Appendix A, Figure 4), J-bars (shown in Appendix A, Figure 5), T-bars (shown in Appendix A, Figure 6), and rope tows (shown in Appendix A, Figure 7).

Table 3. Descriptive Statistics of Types of Lifts at All Resorts

Descriptive Statistic	Gondolas	6 Seat High Speed	4 Seat High Speed	4 Seat	3 Seat	2 Seat	Surface	Total Lifts
Mean	0.26	0.19	1.53	0.84	1.65	1.94	2.49	8.88
Standard Error	0.05	0.05	0.23	0.11	0.14	0.13	0.18	0.56
Median	0.00	0.00	0.00	0.00	1.00	2.00	2.00	7.00
Mode	0.00	0.00	0.00	0.00	1.00	1.00	2.00	5.00
Standard Deviation	0.65	0.63	2.78	1.29	1.71	1.63	2.11	6.77
Variance	0.42	0.39	7.74	1.68	2.92	2.64	4.43	45.80
Kurtosis	6.83	20.80	9.65	6.85	2.01	3.80	8.80	5.68
Skewness	2.67	4.29	2.82	2.23	1.42	1.48	2.48	2.11
Range	3.00	4.00	17.00	8.00	8.00	10.00	14.00	42.00
Minimum	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Maximum	3.00	4.00	17.00	8.00	8.00	10.00	14.00	43.00
Sum	38.00	28.00	222.00	122.00	239.00	281.00	358.00	1,288.00
Count	145.00	145.00	145.00	145.00	145.00	145.00	145.00	145.00

Ski Resort Snowfall

The third large set of data to understand is the amount of annual snowfall at each of the ski resorts listed in Table 1. Each of the 145 unique ski resorts has a unique amount of annual snowfall that affects the housing market for each of the ski resort towns. The data listed in the table below shows the descriptive statistics for the annual snowfall in each of these resort towns.

Table 4. Descriptive Statistics of Annual Snowfall at Ski Resorts

Descriptive Statistic	Number
Mean	211.81
Standard Error	2.43
Median	200.00
Mode	300.00
Standard Deviation	116.61
Variance	13,598.76
Range	536.00
Minimum	24.00
Maximum	560.00
Sum	489,490.00
Count	2,311.00

Ski Resort Housing List Prices

The final large data set that must be analyzed is the housing valuations for each of these ski resort towns, so that the valuation can be analyzed as to how it reacts to both snowfall conditions and the amount of ski lifts on a given ski resort mountain. The housing data was gathered from Zillow. In order to gather the data, the list price, number of bedrooms, number of bathrooms, and number of square feet in the home was recorded for the 25 most recently listed homes for the specific town.

The data set below does have its inefficiencies. For example, not every town has 25 listed housing values, simply because there were not enough houses listed to fill up an entire 25 home grid. For these markets, as many houses were recorded as were listed, but some still fell short. However, even though there are a few shortcomings with the data, the amount of houses analyzed, 2,311 homes, helps to reduce the amount of noise that smaller data samples are susceptible to.

Table 5. Descriptive Statistics of Housing List Prices for Regression Analysis

Descriptive Statistic	House Price	Bedrooms	Bathrooms	Square Footage
Mean	509,472.12	3.18	2.52	2,279.61
Standard Error	33,457.92	0.03	0.03	112.16
Median	275,000.00	3.00	2.00	1,800.00
Mode	299,000.00	3.00	2.00	1,800.00
Standard Deviation	1,608,417.90	1.37	1.38	5,391.84
Variance	2,587,008,156,521.97	1.88	1.92	29,071,931.02
Range	64,985,000.00	18.00	18.00	249,705.00
Minimum	15,000.00	0.00	0.00	295.00
Maximum	65,000,000.00	18.00	18.00	250,000.00
Sum	1,177,390,063.00	7,357.00	5,819.40	5,268,185.00
Count	2,311.00	2,311.00	2,311.00	2,311.00

Chapter 4

Initial Regression

Initial Results

The initial regression results can be seen in the following tables. As one can see, the results are not as conclusive as is usually recommended to make a statement about the data.

Table 6. Initial Regression Descriptive Statistics

Regression Statistic	Number
Multiple R	0.46
R Square	0.21
Adjusted R Square	0.20
Standard Error	1,435,032.55
Observations	2,311.00

Table 7. Initial Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-982,018.85	115,721.16	-8.49	0.00	-1,208,947.63	-755,090.07
Bedrooms	62,285.95	30,408.90	2.05	0.04	2,654.20	121,917.70
Bathrooms	352,812.38	30,109.90	11.72	0.00	293,766.97	411,857.79
Square Footage	16.65	5.67	2.94	0.00	5.54	27.76
Gondolas	186,743.20	59,497.01	3.14	0.00	70,069.62	303,416.48
6 Seat High Speed	-53,289.00	54,260.70	-0.98	0.33	-159,694.20	53,115.89
4 Seat High Speed	80,335.08	18,018.47	4.46	0.00	45,001.78	115,670.08
4 Seat	7,462.89	26,013.48	0.29	0.77	-43,549.60	58,475.08
3 Seat	-52,684.17	22,211.04	-2.37	0.02	-96,240.75	-9,129.21
2 Seat	69,730.94	19,665.47	3.55	0.00	31,166.87	108,294.70
Surface	58,532.67	19,519.93	3.00	0.00	20,254.00	96,811.04
Annual Snowfall	-22.665	295.41	-0.08	0.94	-601.94	556.65

Takeaways from Initial Results

Perhaps the most interesting piece of information from this regression analysis is not that the annual snowfall in a given town acting as a negative variable towards determining housing value, but its P-value is 0.94, meaning that the variable is insignificant. This insignificance means that nothing can be garnered from the negative nature of the coefficient. Another interesting piece of information to garner from this regression analysis is that both the 6 Seat High Speed Lifts and 3 Seat Lifts both act as negative variables when determining housing values. Furthermore, the 6 Seat High Speed Lifts variable is explained to a 33% degree of certainty by other variables within the regression analysis.

Chapter 5

Regression Using Total Lifts

Total Lifts Regression Results

It may behoove this study to perform a regression analysis on simply a number of total lifts at a ski resort, while keeping the rest of the variables unchanged. The results of this regression are detailed in the tables below.

Table 8. Entire Market Total Lifts and Annual Snowfall Regression Statistics

Regression Statistic	Number
Multiple R	0.44
R Square	0.19
Adjusted R Square	0.19
Standard Error	1,446,647.44
Observations	2311.00

Table 9. Entire Market Total Lifts and Annual Snowfall Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-1,127,716.85	100,207.13	-11.25	0.00	-1,324,222.41	-931,211.29
Bedrooms	68,660.26	30,610.46	2.24	0.02	8,633.35	1,286,867.17
Bathrooms	353,061.50	30,264.90	11.67	0.00	293,712.21	412,410.78
Square Footage	17.34	5.71	3.04	0.00	6.14	28.53
Annual Snowfall	41.64	273.34	0.15	0.88	-494.38	577.66
Total Lifts	54,901.25	4,898.28	11.21	0.00	45,295.76	64,506.75

Total Lifts Regression Takeaways

Interestingly, this regression is not significantly better or worse than the previous regression attempt at determining housing valuation. In fact, this attempt is one percent worse at predicting housing valuations than the previous regression. However, we can see that the P-Value of the Annual Snowfall variable has fallen about 6% from the previous regression. This drop in the P-Value can be explained perhaps by the drop in the amount of variables indicating the amount of development at the ski resort. Another interesting point to determine when comparing the two regressions is that in this second regression attempt, all the signs of the coefficients seem to be in their correct place. They are all positive, indicating that their presence gives houses more value, rather than taking away from it. Due to this fact, combined with the fact that the two regression analyses determine housing valuation with essentially the same amount of certainty, the “Total Lift” regression ought to be considered a better regression method.

Chapter 6

Isolating the Variables in Regression

Results of Isolating the Variables

The purpose of this experiment was to determine whether annual snowfall was a better indicator of housing valuation than the total lifts on the mountain. To accomplish this, the variables must be isolated. To accomplish this, two more re and run two more regressions: one detailing all of the housing statistics (bedrooms, bathrooms, and square footage) and only the total lift number at the resort; and one detailing all the housing statistics (bedrooms, bathrooms, and square footage) and only the annual snowfall at the resort. After both regressions are complete, the comparison should tell us the definitive answer for the entire United States market.

As stated in the paragraph above, this next regression analysis will detail only housing variables (bedrooms, bathrooms, and square footage) and the amount of total lifts on the mountain. The results are detailed in the tables below.

Table 10. Total Lifts Only Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.44
R Square	0.19
Adjusted R Square	0.19
Standard Error	1,446,341.01
Observations	2311.00

Table 11. Total Lifts Only Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-112,778.18	89,239.02	-12.56	0.00	-1,295,775.28	-945,781.07
Bedrooms	68,454.17	30,574.07	2.24	0.03	8,498.62	128,409.73
Bathrooms	353,284.72	30,223.01	11.69	0.00	294,017.60	412,551.84
Square Footage	17.32	5.71	3.04	0.00	6.13	28.51
Total Lifts	55,130.79	4,659.79	11.83	0.00	45,992.97	64,268.62

Table 12. Annual Snowfall Only Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.39
R Square	0.15
Regression Statistic	Number
Adjusted R Square	0.15
Standard Error	1,485,224.35
Observations	2,311.00

Table 13. Annual Snowfall Only Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-799,697.03	98,393.96	-8.13	0.00	-992,646.92	-606,747.14
Bedrooms	4,151.97	30,866.23	0.13	0.89	-563,76.50	64,680.44
Bathrooms	415,955.26	30,533.22	13.62	0.00	356,079.82	475,830.70
Square Footage	17.59	5.86	3.00	0.00	6.09	29.08
Annual Snowfall	984.05	267.02	3.69	0.00	460.42	1,507.68

Takeaways from Isolating the Variables

At the comparison of these statistics looks relatively similar, one must understand that the most important number to look for in the reliability of a regression analysis is the R Square value. In comparing the two regressions, using only annual snowfall to predict housing values is 21.05% worse than using only the total amount of lifts to predict housing values.

Interestingly, the addition of annual snowfall gives a no better predictor of housing value than only using the total lifts in place at the ski resort. The high P-Values for the amount of annual snowfall variable, shown in tables eight and 10, is almost definitively because the amount of lifts at a ski resort is correlated rather strongly with the amount of snowfall that the resort receives. This is shown by the fact that when only annual snowfall is analyzed, without taking into account the number of lifts at that resort, the P-Value is 0.00. The amount of total lifts on a ski resort is a significantly better predictor of housing valuations than is the annual snowfall at that ski resort, according to the regressions run that are detailed in the previous sub-chapter.

Chapter 7

Controlling for Location

Reasoning

While it is tempting to stop running regression analyses when such a definitive statement is made through the numbers about the fact that annual snowfall is not a better predictor of housing values at a ski resort than is the total lifts at that resort, one must consider one important saying of real estate professionals and professors alike: “location, location, location”. Because location is a significant, perhaps the most significant, determinant of housing valuations, one must account for this factor when determining any sort of regression analysis to determine single family housing values. While the previous regressions did attempt to control for location by only selecting houses that were in the same town as a ski resort, there may be a better way to analyze the data that controls for location a bit more than simply by restricting the data to only ski resort towns.

There are a few options for further breaking down the data. First, one could analyze the data by State. This would allow for a few varying snowfall numbers, and control for the fact that the real estate market in each State is bound to be different than any other State. However, there is one slight problem with analyzing the data this way: there is not an even distribution of ski resorts per state. For example, Colorado, with its high snowfall average for all of its resorts (304 inches), has 21 resorts analyzed in this study. Compared to Connecticut, where the average snowfall is only 24 inches, and there is only one resort analyzed in this study.

Therefore, perhaps the best way to begin comparing locations is to simply analyze the resorts by their region, northeast or rocky mountain, and compare the two. Perhaps in this breakdown, there will be not only a better regression confidence level, but also a change in how annual snowfall and the total lifts at a resort determine housing value.

Location Controlled Data Sets

In the interest of full disclosure, the summary statistics of both the Northeast region's and the Rocky Mountain region's housing list price, total ski lifts, and annual snowfall is detailed in the tables below.

The biggest piece of information to note about comparing the two tables is that the two have essentially the same amount of houses being analyzed, but the Rocky Mountain region has houses that are actually smaller on average, but cost about $250,000 more. In addition, the Rocky Mountain region receives significantly more snowfall, nearly twice as much as the Northeast region. With this larger amount of annual snowfall, the Rocky Mountain region also has more lifts, about one to one and a half more lifts on its resorts than does the Northeast region. There are some significant differences in the data, but it remains to be seen if these differences will result in a different outcome in terms of a better regression analysis.

Table 14. Descriptive Statistics of Northeast Region Regression

Descriptive Statistic	List Price	Bedrooms	Bathrooms	Square Footage	Total Lifts	Annual Snowfall
Mean	376,708.96	3.22	2.48	2,339.24	7.89	136.19
Standard Error	16,903.06	0.04	0.04	220.92	0.13	2.23
Median	239,900.00	3.00	2.00	1,782.00	6.00	120.00
Mode	249,000.00	3.00	2.00	1,800.00	5.00	100.00
Standard Deviation	572,961.31	1.39	1.41	7,488.59	4.47	75.49
Variance	328,284,657,132.56	1.93	2.00	56,078,942.66	19.95	5,698.65
Kurtosis	94.59	17.90	19.91	1,044.69	0.92	1.56
Skewness	7.81	2.49	2.87	31.62	1.14	1.30
Range	9,984,000.00	18.00	18.00	2,49700.00	19.00	341.00
Minimum	15,000.00	0.00	0.00	300.00	3.00	36.00
Mean	376,708.96	3.22	2.48	2,339.24	7.89	136.19
Standard Error	16,903.06	0.04	0.04	220.92	0.13	2.23

Table 15. Descriptive Statistics of Rocky Mountain Region Regression

Descriptive Statistic	List Price	Bedrooms	Bathrooms	Square Footage	Total Lifts	Annual Snowfall
Mean	640,749.97	3.15	2.56	22,220.65	9.63	286.58
Standard Error	64,190.82	0.04	0.04	45.31	0.24	2.96
Median	312,450.00	3.00	2.00	1,824.00	7.00	300.00
Mode	299,000.00	3.00	2.00	1,800.00	7.00	300.00
Standard Deviation	2,188,144.38	1.35	1.36	1,544.46	8.15	100.83
Variance	4,787,975,845,382.78	1.83	1.84	2,385,365.89	66.41	10,167.43
Kurtosis	651.58	2.17	13.75	15.09	3.66	0.53
Skewness	23.01	0.63	2.28	2.79	1.92	0.04
Range	64,970,100.00	0.00	0.00	295.00	1.00	24.00
Minimum	29,900.00	0.00	0.00	295.00	1.00	24.00
Maximum	65,000,000.00	12.00	17.00	16,961.00	43.00	560.00
Sum	744,551,463.00	3,655.00	2,969.50	2,580,398.00	11,194.00	333,007.00

Chapter 8

Location Controlled Regression

Rocky Mountain Regression Results

Table 16. Rocky Mountain Region Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.57
R Square	0.32
Adjusted R Square	0.32
Standard Error	1804930.57
Observations	1162.00

Table 17. Rocky Mountain Region Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-1,083,033.88	208,102.06	-5.20	0.00	-1,491,333.92	-674,733.84
Bedrooms	-258,084.92	56,847.42	-4.54	0.00	-369,620.59	-146,549.24
Bathrooms	113,073.53	58,242.87	1.94	0.05	-1,200.04	227,347.11
Square Footage	767.20	54.98	13.96	0.00	659.34	875.07
Annual Snowfall	-363.35	542.80	0.67	0.50	1,428.34	701.63
Total Lifts	67,167.60	6,886.28	9.75	0.00	53,656.60	80,678.60

Northeast Regression Results

Table 18. Northeast Region Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.65
R Square	0.43
Adjusted R Square	0.43
Standard Error	433904.69
Observations	1149.00

Table 19. Northeast Region Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-358,068.39	44,130.76	-8.11	0.00	-444,654.76	-271,482.01
Bedrooms	68,565.60	13,976.85	4.91	0.00	41,142.44	95,988.76
Bathrooms	209,261.92	13,671.99	15.31	0.00	182,436.90	236,086.93
Square Footage	2.96	1.73	1.72	0.09	-0.43	6.36
Annual Snowfall	-133.03	196.36	-0.68	0.50	-518.29	252.22
Total Lifts	761.70	3,360.55	0.23	0.82	-5,831.84	7,355.23

Location Controlled Regression Takeaways

At first glance, the regionalized regression angle seems to give a better regression analysis than analyzing the entire country at one time. However, there are high P-Values for both the annual snowfall value, as well as the total lifts value, possibly because of the strong correlation between the two. Again, the annual snowfall coefficient is negative, which would make annual snowfall in ski resort towns an actual negative externality, when compared to variables analyzed in this study that factor into housing value, such as bedrooms, bathrooms, square footage, and total lifts at the ski resort.

The Rocky Mountain Regional analysis, similarly to the Northeast regional analysis, shows a better R Square value than the national study. Again, the Annual Snowfall variable is again shown as having a negative effect on housing prices. However, while the P-Value for

Annual Snowfall is large, similarly to the Northeast regional study, the Total Lifts variable's P-Value is as low as it can possibly be. This seems to contradict the Northeast regional analysis in showing that the two are correlated together. Instead, because of a different data set, the Total Lift variable is not correlated with Annual Snowfall, but the Annual Snowfall is correlated with something else within this data set.

Chapter 9

Isolating Variables in Both Regions

Reasoning

This is a study attempting to prove that annual snowfall is a better predictor of housing valuations than the amount of ski lifts built on a ski resort. In order to do this, the variables must be isolated. Therefore, in order to truly understand if there is a difference in regionalizing the data, the variables must be isolated in the two regions for this study.

Northeast Region Isolated Regression Results

Table 20. Northeast Region Annual Snowfall Only Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.65
R Square	0.43
Adjusted R Square	0.43
Standard Error	433724.75
Observations	1149.00

Table 21. Northeast Region Annual Snowfall Only Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-354,703.71	41,541.87	-8.54	0.00	-436,210.51	-273,196.91
Bedrooms	68,080.72	13,806.44	4.93	0.00	40,991.94	95,169.50
Bathrooms	209,766.01	13,484.29	15.56	0.00	183,309.29	236,222.73
Square Footage	2.97	1.73	1.72	0.09	-0.42	6.35
Annual Snowfall	-111.36	171.42	-0.65	0.52	-447.69	224.98

Table 22. Northeast Region Total Lifts Only Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.65
R Square	0.43
Adjusted R Square	0.43
Standard Error	433,802.08
Observations	1,194.00

Table 23. Northeast Region Total Lifts Only Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-368,580.92	41,303.31	-8.92	0.00	-449,619.65	287,542.18
Bedrooms	69,022.32	13,957.28	4.95	0.00	41,637.58	96,407.07
Bathrooms	209,103.34	13,666.75	15.30	0.00	182,288.637	235,918.05
Square Footage	2.99	1.73	1.73	0.08	-0.40	6.38
Total Lifts	-347.25	2,934.30	-0.12	0.91	-6,104.48	5,409.97

Northeast Region Isolated Regression Takeaways

Isolating the variable of Annual Snowfall does not eliminate the negative effect of the externality. However, this regression of isolating the annual snowfall neither improved nor hurt the effectiveness of the regression analysis, with both R Square values equating the same amount. The interesting piece of information concerning this regionalized isolated regression is that the P-Value of annual snowfall is still very high, which does challenge the theory that the annual snowfall P-Values are high due to their correlation with the amount of total lifts at a ski resort. However, the equation for this regression is defined by the following:

Interestingly enough, the above isolated regression results in the exact same R Square value as the annual snowfall isolated regression analysis and the northeast region as a whole regression analysis. This seems to suggest that the effect of both total lifts on a ski resort and also annual snowfall does not seem to have a significant effect on the housing value at all. If they were indeed a significant driver of housing prices in the Northeast region of the data set, eliminating one of them would certainly result in a lower R Square value of the regression.

However, if the two are closely correlated with one another, only eliminating one of the coefficients would not significantly affect the value of the R Square value. On the other hand, the regressions run at the national level seemed to show that both total lifts and also annual snowfall were significant drivers of housing prices. Another wrench being thrown into the machine is the fact that the Total Lifts value in this isolated regression analysis works as actually a negative externality to houses. This is the first time that the Total Lifts variable has come up in any regression summary to be a negative externality.

Rocky Mountain Region Isolated Regression Results

Table 24. Rocky Mountain Region Annual Snowfall Isolated Regression Summary Statistics

Regression Statistic	Number
Multiple R	0.52
R Square	0.27
Adjusted R Square	0.26
Standard Error	1,876,922.36
Observations	1,162.00

Table 25. Rocky Mountain Region Annual Snowfall Isolated Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-718,169.73	212,877.59	-3.37	0.00	-1,135,839.07	-300,500.39
Bedrooms	-366,186.43	57,980.50	-6.32	0.00	-479,945.13	-252,427.72
Bathrooms	204,060.95	59,784.08	3.41	0.00	86,763.59	321,358.30
Square Footage	781.52	57.15	13.68	0.00	669.40	893.65
Annual Snowfall	885.50	548.52	1.61	0.11	-190.70	1,961.71

Table 26. Rocky Mountain Region Total Lifts Isolated Regression Summary Statistics

Regression Statistic	Value
Multiple R	0.57
R Square	0.32
Adjusted R Square	0.32
Standard Error	1,804,500.04
Observations	1,162.00

Table 27. Rocky Mountain Region Total Lifts Isolated Regression Results

Variable	Coefficients	Standard Error	T Stat	P-Value	Lower 95%	Upper 95%
Intercept	-1,173,534.45	158,167.32	-7.42	0.00	-1,483,861.33	-863,207.57
Bedrooms	-258,191.45	56,833.64	-4.54	0.00	-369,699.98	-146,682.91
Bathrooms	111,475.65	58,180.05	1.92	0.06	-2,674.58	225,625.87
Square Footage	767.77	5.96	13.97	0.00	659.95	875.60
Total Lifts	66,080.24	6,690.36	9.88	0.00	52,953.65	79,206.83

Rocky Mountain Region Isolated Regression Takeaways

These results show a much lower confidence than the Northeast region's Snowfall Isolated regression analysis. In fact, the Rocky Mountain Snowfall Isolated regression's R Square value is 37.21% worse than the Northeast Snowfall Isolated regression's R Square value. In addition, in the Rocky Mountain range, it seems as if Annual Snowfall is a positive externality, and that it has a lower P-Value.

The Rocky Mountain region proves itself to be quite different from the Northeast region. While the R Square values are lower for the Rocky Mountain region, as compared to the Northeast region, one can see that both the total number of lifts and also the annual snowfall act as positive externalities when determining housing prices.

Comparing the Regressions of the Two Regions

Overall, breaking the housing values down to their regions dramatically affected the effectiveness of the regression values, as shown by the dramatic increases in the R Square values. Curiously, breaking the housing values into their geographic regions actually revealed that the coefficients for both the snowfall variable and also the total lifts variable were negative. The fact that the coefficients were negative in the northeast region, spanning nearly half of the entire data set, most likely dramatically affected the R Square value of the regression analyses of the entire data set.

Location is one of the most important and primary drivers of housing prices. Breaking the data down into two regions, even though they spanned several states' worth of locations, dramatically improved the regression analyses' results. The two regions vastly differ in the average housing list price, each house's annual snowfall, and the amount of lifts on the ski resort in the town that the house is located in. Breaking down the data to an even more specific area would most likely improve the R Square value even more. However, because the amount of ski resorts vary so differently by state, more data would need to be collected in order to create a more reliable regression analysis than was in the data set used for this study.

Chapter 10

Examining Results

Takeaways of Study

This regression project began as a study as to prove that annual snowfall affects housing values in ski resort towns more than the amount of ski lifts on those ski resorts. The ski lifts were a proxy for how developed and large the ski resort is. However, from the very first regression where the two variables being compared were isolated, this statement was proven to be false. In fact, even breaking down the data into two separate geographic regions failed at proving that the annual snowfall in ski towns was a better predictor of housing value than the amount of total lifts at the resort. In truth, every regression run showed that the total lifts at a ski resort was actually a better predictor of housing value in ski resort towns than was the amount of annual snowfall.

Perhaps the reason that the annual snowfall variable was proven to either be statistically insignificant or actually a negative externality is due to the fact that snowfall has been shown to damage and reduce the lifespan of houses, making houses in high snowfall areas more costly to upkeep. In addition, ski resorts now have the ability to create their own snow with snowmakers and move snow around the resort to more cover the entire mountain with snow cats and other snow moving machinery.

Perhaps the reason that the total lifts variable was so significant in predicting the housing value is that it was a true proxy for both the amount of infrastructure/development that has taken place at a given ski resort and also the size of the mountain. Infrastructure has long been proven to be a positive externality for housing value, which would drive the house price up. Concerning the size of the resort, the larger the resort is, the more terrain is accessible for the homeowners to use at their disposal, acting as essentially a large park to have recreational activities in. The larger a resort is, the more land homeowners have to use, and thus this gives homeowners a positive benefit, allowing for higher housing values.

Overall, this project hopefully gives homebuyers and investors alike more information to consider buying a house in a ski resort town. A house is most American's largest investment of their life, and anything that sheds more light so that they can make a smarter decision will instantly help the market. This study proves that in ski resort towns, the amount of total lifts at the ski resort in the town correlates higher to housing values than does the amount of annual snowfall in those resort towns.

Appendix A

Differences in Types of Ski Lifts

Figure 2. Example of a Gondola

Figure 3. Example of a Rope Tow

Figure 4. Example of a Poma Lift

Figure 5. Example of a J-Bar

Figure 6. Example of a T-Bar

Figure 7. Example of a Rope Tow

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