Massachusetts Vehicle Repair Cost Study

(October 20, 2020)

EXECUTIVE SUMMARY

Based on a study conducted by Lang Marketing in which Independent Automotive Repair Shops and Automotive Dealers in Massachusetts were interviewed, the repair costs for a defined set of vehicles and repairs is 36.2% higher at Dealers than at Independent Repair Shops. The difference is greater in the Greater Springfield-Worcester area (48.6%) than in the Greater Boston area (25.1%). The price differentials are based on conducting interviews with Independent Repair Shops and Dealers to obtain repair cost estimates for a defined list of repairs for specific vehicles.

KEY FINDINGS

1. Repair cost differences between Dealers and Independent Repair Shops are greater in the Springfield/Worcester Market than in the Boston Market. Dealer average repair costs are higher in the Springfield/Worcester Market than in the Boston Market, reflecting the greater competition among Dealers in the Boston Market (due to their numbers) than in the Springfield/Worcester Market (where there are fewer Dealers). By contrast, overhead and other operating expenses for Independent Repair Shops are generally lower in the Springfield/Worcester Market than in the Boston Market, helping to lower the repair prices of Independent Repair Shops in the Springfield/Worcester Market compared to Boston.
2. Higher Dealer repair costs is a consistent finding of the 2020 study: this applies across all repairs, all vehicles, and both geographic markets.
3. Among the three repairs for which Reman products are an option, Independent Repair Shops base their repair costs on Reman units 35% of the time compared to 16% for Dealers.
4. Repair Outlets in the Springfield/Worcester Market are twice as likely to base their repair costs on Reman units as repair outlets in the Boston Market.
5. The 2020 results reinforce and further validate basic finding from the earlier study of 2008 repair cost differences between Dealers and Independent Repair Shops that was sponsored by the Auto Care Association.

Study Overview

During the first week of October 2020, Lang Marketing conducted a study based on 144 telephone interviews with New Car Dealership and Independent Repair Shop personnel at randomly selected outlets in two major Massachusetts markets: Greater Boston and Greater Springfield/Worcester.

Markets
The Greater Boston Market includes New Car Dealerships and Independent Repair Shops inside the I-495 Beltway. The Greater Springfield/Worcester Market includes New Car Dealerships and Independent Repair Shops within approximately 30 miles of these two towns.

Repairs
The following six Repair Jobs are covered in this study:

- Alternators
- Front Brake Pads and Rotors
- Radiators (complete unit, not core)
- Starters
- Lower Ball Joints (both sides)
- Water Pumps

These six repairs were included in a 2008 study of repair costs sponsored by the Auto Care Association and represent a market basket of vehicle repair in the U.S. aftermarket.

Outlets
Six outlets (two Dealers and four Independent Repair Shops) were covered for each combination of markets, vehicles, and repairs. Outlets were randomly selected within each of the two markets. A total of 144 interviews were completed (2 markets x 12 vehicles x 6 repairs). As such, each call addressed one repair job for one specific vehicle.

Products
In the case of three repairs, where both new and remanufactured products are available, outlets were not prompted on the type of product to include in their repair cost quote. After quotes were received by callers, outlets were asked what type of product they had included in their quote: new or remanufactured.

Vehicles
Two vehicles were specified for each of the six repairs covered, a total of 12 different vehicles. These vehicles represent the most popular configurations of cars and light trucks by model year and nameplate that currently are registered in Massachusetts.

Repair cost estimates were gathered for each of the 12 vehicles specified in the Greater Boston Market and the Greater Springfield/Worcester Market.

Vehicles assigned to each of the six Repair Jobs are as follows:

- Alternators
    - 2013 Hyundai Elantra GLS
    - 2014 Ford Focus EX

- Front Brake Pads and Rotors
    - 2013 Ford F-150
    - 2015 Subaru Forester 2.5i Premium

- Radiators (complete unit, not core)
    - 2015 Chevrolet Silverado K1500 LT
    - 2015 Nissan Altima 2.5

- Starters
    - 2014 Honda CR-V LX
    - 2015 Jeep Grand Cherokee LTD

- Upper Ball Joints (both sides)
    - 2011 Toyota Camry LE
    - 2012 Honda Civic LX

- Water Pumps
    - 2013 Honda Accord EXL
    - 2011 Toyota Corolla CE

Callers
Callers presented themself as the vehicle owner, so that no bias would be introduced by outlets believing that they were part of a survey. When asked, the caller provided a VIN number[1].

Comparison with Earlier Study
The methodology of the current study is comparable to major aspects of the repair cost study conducted by Auto Care Association in 2008 and published in a report titled "Vehicle Repair Cost Analysis: New Car Dealerships versus Independent Repair Shops".

STUDY RESULTS

Summaries of the results are displayed on the subsequent pages. They are presented as follows:

- Repair 1: Alternators
- Repair 2: Front Brake Pads & Rotors
- Repair 3: Radiators
- Repair 4: Starters
- Repair 5: Lower Ball Joints
- Repair 6: Water Pumps

[1] One VIN number for each vehicle of interest was collected through public sources (e.g., Carvana, eBay). This was necessary to permit shops and dealers to access repair information through a shop management system in preparing their estimate. This also ensured that different outlets provided repair costs for the exact same vehicles.

Study Results Table 1: Both Markets Combined

Excess Repair Costs to Consumers
(Cost of Parts & Labor)
2020 Study of Both Massachusetts Markets

Repair Job		New Car Dealers	Independent Repair Shops	Average Difference
01	Alternators	$723.76	$479.59	$244.17
02	Front Brake Pads & Rotors	$517.42	$395.69	$121.73
03	Radiators	$954.97	$510.94	$444.03
04	Starters	$807.13	$675.19	$131.94
05	Lower Ball Joints	$519.08	$433.16	$85.92
06	Water Pumps	$636.66	$559.38	$77.28
	Total	$4,159.02	$3,053.95	$1,105.07
	Dealer Excess Repair Costs			36.2%

Results:

- Repair costs in this table include the costs of both parts and labor for each repair job shown.
- Total average Dealer costs are higher than total average Independent Repair Shop costs for each of the six repair jobs.
- Total average Dealer costs for all six repair jobs combined are 36.2% higher than the total combined average Independent Repair Shop costs for these six repair jobs.

Study Results Table 2: Two Different Markets

Excess Repair Costs to Consumers
(COST OF PARTS & LABOR)
2020 Study of Two Different Massachusetts Markets

REPAIR JOBS		GREATER BOSTON MARKET		GREATER SPRFLD/WORCTR		BOTH MARKETS	
		INDEP	DEALER	INDEP	DEALER	INDEP	DEALER
01	ALTERNATORS	$468.69	$740.37	$490.50	$707.16	$479.59	$723.76
02	FRONT BRAKE PADS & ROTORS	$397.00	$509.50	$394.38	$525.34	$395.69	$517.42
03	RADIATORS	$539.25	$997.20	$482.62	$912.75	$510.94	$954.97
04	STARTERS	$743.75	$690.50	$606.62	$923.75	$675.19	$807.13
05	LOWER BALL JOINTS (BOTH SIDES)	$417.38	$450.41	$448.94	$587.74	$433.16	$519.08
06	WATER PUMPS	$653.13	$637.75	$465.63	$635.56	$559.38	$636.66
TOTAL MARKET BASKET (MB) OF SIX REPAIR JOBS		$3,219.20	$4,025.73	$2,888.69	$4,292.30	$3,053.95	$4,159.02
$ VARIANCE: DEALERS / INDEPENDENT AFTERMARKET (MB)			$806.53		$1,403.61		$1,105.07
% VARIANCE: DEALERS / INDEPENDENT AFTERMARKET (MB)			25.1%		48.6%		36.2%

Results

- In the Greater Springfield/Worcester market, the total average Dealer costs for all six repair jobs are 48.6% higher than total average costs of Independent Repair Shops.
- In the Greater Boston market, the total average Dealer costs are 25.1% higher for all six repair jobs than total average costs of Independent Repair Shops.
- For both markets, total average Dealer repair costs are 36.2% higher than total average repair costs of Independent Repair Shops.

STATISTICAL SIGNIFICANCE ANALYSIS

Lang Marketing conducted four (4) statistical analyses detailed below. Note the following:

Test 1: Total Average Dealer Costs vs. Total Average Independent Repair Shop Costs

Summary

- For all six repairs, Dealers average costs are higher than Independent Repair Shops for consumers. The significance level is over 98% that the null hypothesis of "no difference in cost between Dealers and Independent Repair Shops" is rejected.

Dataset:

- For each of the six repair jobs studied, total average Dealer costs are higher for each repair than the total average Independent Repair Shop costs.

Null Hypothesis

- For each of the six repair jobs, there is no difference in the total average costs of Dealers compared to the total average costs of Independent Repair Shops.

Assumption

- If there is no difference in the total average repair costs of Dealers versus the total average repair costs of Independent Repair Shops across the six repairs studied, the chances of Dealer costs being higher than Independent Repair Shops for an individual repair is 50-50 (even odds).

Statistical Test

- What are the odds of Dealers having higher average costs for each of the six repair jobs if the odds of Dealers being higher for a single repair job is 50-50?

Test Results

- The chances of Dealers being higher for each of the six repair jobs if the odds are 50-50 in each case is 1.56%.

Statistical Significance

- This exceeds the 95% Significance (Confidence) Level of rejecting the null hypothesis that there is no difference in Dealer costs versus Independent Repair Shop costs.

Test 2: Total Average Dealer Costs vs. Total Independent Repair Shop Costs for Repair Job Combinations

Summary

- For all 24 groups of repairs (6 repairs x 2 types of vehicles x 2 markets), average Dealer costs are higher than average Independent Repair Shop costs in 21 groups of repairs. The significance level is over 99 % that the null hypothesis of "no difference in cost between Dealers and Independent Repair Shops" is rejected.

Dataset

- For each of the 24 combinations of vehicles and outlets for each of the six repair jobs studied, total average Dealer costs are lower in three cases compared to the total average Independent Repair Shop costs.

Null Hypothesis

- For each of the 24 repair job combinations, there is no difference in the total average costs of Dealers compared to total average costs of Independent Repair Shop.

Assumptions

- If there is no difference in the total average repair costs of Dealers versus the total average repair costs of Independent Repair Shops across the 24 combinations studied, the changes of Dealers being lower than Independent Repair Shops in an individual combination is 50-50 (even odds).

Statistical Test

- What are the odds of Dealers having lower average costs in 3 of the 24 combinations of repair jobs if the odds of Dealers being lower for a single combination is 50-50?

Test Results

- The changes of Dealers being lower in 3 of the 24 repair job combinations if the odds are 50-50 in each combination, less than 1.0%.

Statistical Significance

- This exceeds the 99% Significance (Confidence) Level of rejecting the null hypothesis that there is no difference in Dealer repair costs versus Independent Repair Shop costs.

Test 3: Total Average Dealer Cost vs. Total Average Independent Repair Shop Cost with All Outlets as One Survey Group

Summary

- For all of the outlets covered (Dealers and Independent Repair Shops combined), the findings have a 95% Significance (Confidence) Level with a Confidence Interval of +/-8%.

Dataset

- In the Greater Boston market, the total average Dealer costs for all six repair jobs totaled 25.1% higher than the total average costs of Independent Repair Shops for all six repair jobs.
- In the Greater Springfield/Worcester market, the total average Dealer costs for all six repair jobs totaled 48.6% higher than the total average costs of Independent Repair Shops for all six repair jobs.
- In both markets, the total average Dealer costs for all six repair jobs totaled 36.2% higher than the total average costs of Independent Repair Shops for all six repair jobs.

Null Hypothesis

- For each of the six repair jobs, there is no difference in the total average costs of Dealers compared to the total average costs of Independent Repair Shops in the Greater Boston market, the Greater Springfield/Worcester market, and Both Markets.

Assumption

- The answers provided by outlets in the sample populations reflect the answers that would be provided by the total population of all outlets.

Statistical Test

- What are the odds of outlets in the sample population giving answers that would be the same as the total population of all outlets?
- The research sample of 144 interviews was tested against a total population of 1,512 Dealers and Independent Repair Shops in the Massachusetts markets studied.

Test Results

- The chances of survey results reflecting the total population of repair outlets has a 95% Significance (Confidence) Level.
- The Confidence Interval is +/- 8%.

Test 4: Repair Job Cost between Dealers and Independent Repair Shops with Dealers and Independent Repair Outlets as Survey Groups

Summary

- For each of the two groups of outlets covered (Dealers and Independent Repair Shops) the findings have a 95% Significance (Confidence) Level with a Confidence Interval of +/-10%.

Dataset

- In the Greater Boston market, the total Dealer costs of all six repair jobs totaled 25.1% higher than the total costs of Independent Repair Shops for all six repair jobs.
- In the Greater Springfield/Worcester market, the total Dealer costs of all six repair jobs totaled 48.6% higher than the total costs of Independent Repair Shops for all six repair jobs.
- In Both markets, the total Dealer costs of all six repair jobs totaled 36.2% higher than the total costs of Independent Repair Shops for all six repair jobs.

Null Hypothesis

- For each of the six repair jobs, there is no difference in the total average costs of Dealers compared to the total average costs of Independent Repair Shops in the Greater Boston market, the Greater Springfield/Worcester market, and Both Markets.

Assumption

- The answers provided by outlets in the sample populations reflect the answers that would be provided by the total population of all outlets in that group.

Statistical Test

- What are the odds of Dealer and Independent Repair Shops in the sample populations giving answers that would be the same as the total populations of each of these two outlet groups?
- The research sample of 48 Dealer interviews was tested against a total population of 89 Dealers selling the nameplates covered by the analysis in the Massachusetts markets studied.
- The research sample of 96 interviews of Independent Repair Shops was tested against a total population of 1,423 Independent Repair Shops in the Massachusetts markets studied.

Test Results

- For the test of Dealer outlets, the chances of survey results reflecting the total population of Dealer outlets has a 95% Significance (Confidence) Level.
- The Confidence Interval for the Dealer test is +/- 10%.
- For the test of Independent Repair Shops, the chances of the survey results reflecting the total population of Independent Repair Shops has a 95% Significant (Confidence) Level.
- The Confidence Interval of the Independent Repair Shop test is +/- 10%.