Automotive Industry Analysis: Repair and Aftermarket Business Segment – Dependencies and the Market Outlook

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1. Abstract

This document will provide contextual scope for considering capital outlay opportunities in the automotive aftermarket components and repair industry in North American markets. The below narrative is positioned to provide unbiased and fully researched data points to ensure complete appreciation of the subject matter.

2. Background

There is constant and significant demand for auto repair services and automotive component sales in North America. In fact, the average American household owns 1.9 vehicles and spends around 1.5 % of its annual income on auto related repairs. The typical American family unit earned $54,453 in 2004, which indicates that Americans spent approximately $817 USD annually on automotive repairs, or $408 USD per vehicle.[1] It is really no surprise, the American culture has always seemed to have a love affair with the automobile.

This love affair with the automobile was present early on during the 1920s and 30s, and grew as hard-surfaced roads produced mobility, blurring the traditional rural-urban split.[2] This resulted in expansion of the suburbs into networks of communities tied together regionally, by commerce and modest tourism. The institutionalization of the automobile into the American culture was solidified by signing the Federal Aid Highway Act of 1956 by President Dwight D Eisenhauer. The Federal Aid Highway Act pumped $25 billion dollars into the American highway system (239 billion in today's dollars), by funding the constructing of 41,000 miles of modern highways.[3] This significant investment in the American infrastructure improved the efficiency of the American logistics community as a whole, and is currently fueling the American gross domestic product by directly employing 1.7 million Americans annually.[8]

3. Cause and Effect

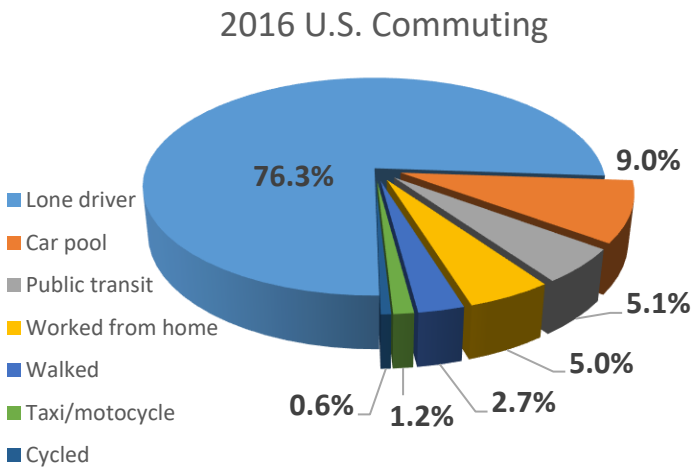
The 1959 expansion of the American highway system facilitated the mobility of the American family outward from cities and industrial settings to more suburban surroundings. Public transit expanded outward as well like arteries into the suburban communities, limited only by population and the complexity of multi-agency capital funding.

For many American's, historically speaking, the automobile has been a vital mode of travel for their daily commute. In the 1970s the automobile was no longer just a novelty. The institutionalization initiated back in 1956 has made the automobile industry a vital financial consortium, accounting for 3.5% of the American GDP today.[8] Not only is the automotive industry a huge consumer of goods and services from many other sectors, but it also contributes to a net employment impact in the U.S. economy of nearly 8 million jobs.

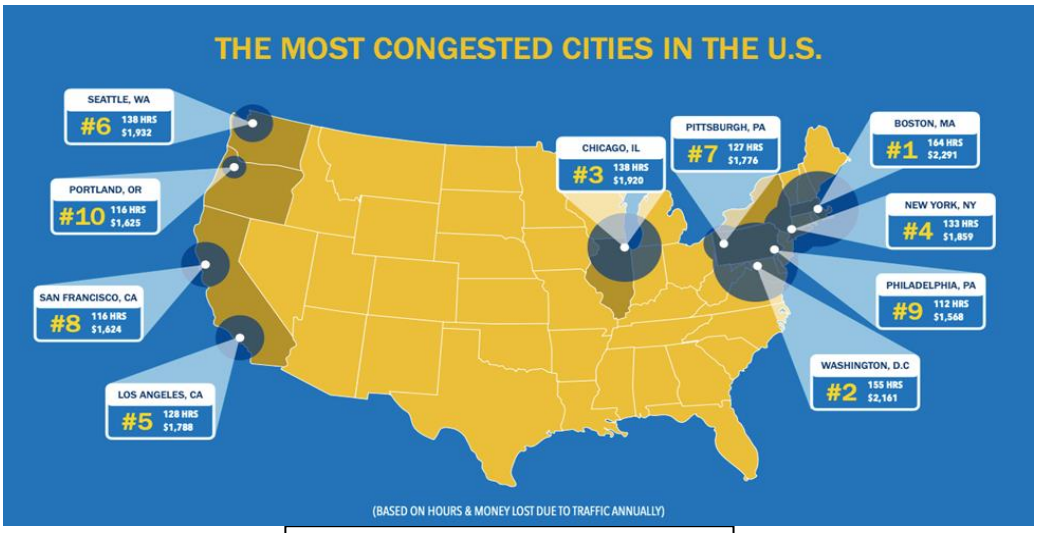
America's decades long symbiotic relationship with the automobile has certainly not been without its challenges. The World Health Organization reports that in 2012 around 7 million people, one in eight of total global deaths, died because of air pollution exposure[4]. The U.S. has 30 percent of the world's automobiles, yet it is responsible for roughly half of the world's automotive emissions. According to the EPA, motor vehicle use is responsible for 75% of carbon monoxide pollution in the U.S. The Environmental Defense Fund (EDF) estimates that on-road vehicles cause one-third of the air pollution that produces smog in the U.S. In addition, transportation activities cause 27 percent of greenhouse gas emissions[5].

Along with the automobile's direct adverse effects on human health and the environment, traffic congestion around metropolitan centers are also a major source of daily stress in industrialized nations. As the demand for automobiles grows in pace with the population, regional hubs have become major clusters of automotive congestion. The congestion's effect on human health and quality of life are major health concerns. Additionally, this congestion reduces efficiency in urban and industrial centers in many ways. 2018 data confirms that traffic congestions cost the U.S. economy 87 billion dollars annually.[7]

Over 76 percent of Americans drive alone to work every day, while another 9 percent utilize carpools. The data included 150 million workers in 2016. The result is at least 115 million cars and trucks hitting American streets every day. The increase in transportation times, and its impact on efficiency are obvious.[6]



Astonishingly, there is an estimated 247 million vehicles registered in the United States, with an average annual increase of 3.5 million vehicles each year since 1960.[5] Population centers are impacted harder by automotive congestion, and studies have forecast that in 18 metropolitan areas congestion will rise more than 30% by 2030. [23] About 55% of the world's population live in urban areas, and that figure is expected to rise to 68% by 2050.[7]



The INRIX 2018 Global Traffic Scorecard

4. Infrastructure

Along with the macro influences of the automobile in American society, there are also the complexities of managing and maintaining the large infrastructure required. More than a quarter of the nation's major urban roads were rated as being in bad shape as of 2013, according to the TRIP (National Transportation Research Group), annual report of 2015. The cost of repairing the resulting broken axles, blown tires and battered shock absorbers was $516 a year for the average driver.[4] Poor road conditions in some US cities cost the average driver as much as $1,044 per year in repair expenses. All in, TRIP estimates that the nationwide annual cost of driving on bad roads as roughly $109 billion. The American Society of Civil Engineers points out that is more than the combined federal, state, and local spending of $91 billion a year for the maintenance of infrastructure in 2013.[4] Further indicating the higher demand for automotive oriented services is the expected increase in demand over the next twenty years. The US Energy Information Administration (EIA) is predicting that the number of car miles driven annually in the US will increase from 2.6 trillion in 2011 to 3.6 trillion in 2035, an annual growth rate of 1.2 percent.[5] This is a staggering number especially when considering the amount of emissions this increase will contribute to the environment.

Although taxpayers contribute significant funds annually to America's highway systems, the shear complexity and responsibility of oversight has made managing infrastructure conditions nearly impossible. To address the issue of failing infrastructure, President Obama signed into law a program called the MAP21 act 2012. The "Moving Ahead for Progress in the 21st Century Act" is a funding and authorization bill to govern United States federal surface transportation spending. The $105 billion two-year bill does not significantly alter total funding from the previous authorization but does include many significant reforms. The Congressional Budget Office estimates that enacting MAP-21 will reduce the federal budget deficit over the 2012–22 period by $16.3 billion.

In their 2017 Infrastructure Report Card, the American Society of Civil Engineers (ASCE) rates U.S. infrastructure as a D+ using a methodology that assesses factors such as capacity, condition, funding, future needs, operation and maintenance. The ASCE reports the total cost of U.S. infrastructure improvement at $4.59T in 2017, up from $1.3T in 2001.[24]

In essence the MAP-21 bill requires recipients of federal funding to maintain records of asset health condition and develop strategic plans to maintain the lifecycle of the assets. This act will go a long way in establishing a jumping off point for the establishing of industry wide dataset standards for integration with AI, the establishment of digital twin templates and more intuitive reliability centered maintenance solutions. Public infrastructure maintenance activities can learn a lot from asset intense industries by adopting more tactical approaches to asset integrity management.

5. Market Outlook

Along with understanding how the automobile affected American culture, it is interesting to consider the evolution of the automobile and the myriad of advances made that allow safe and reliable travel. These highly complex assets are heavily dependent on computer systems to calculate everything from throttle position to ambient air temperature. In addition, we are now in the infancy of autonomous travel. In the automotive industry, research and development is paramount to maintaining market share.

Driving the automotive industry heavy investment in product development are global competition with trade partners, an educated and passionate consumer base, as well as safety and environmental regulators. The automobile industry spends $16 to $18 billion every year on research and product development.[8] These complex systems require periodic maintenance to achieve an expected level of asset safety and reliability. Over time, this maintenance can be quite a lucrative business for both national and global markets.

According to research, the global automotive repair and maintenance services market are anticipated to be valued at 479.3 BN USD by the end of 2017, It is projected to expand at a compound annual growth rate of 5.8% over the forecast period, to exceed 840.9 BN USD in the coming decade.[7] As with any complex piece of machinery, the automobile requires frequent servicing ranging from every three months, to every twelve months intervals. Some of the more frequent repairs involve wear items, commodities, brakes systems,
engine subsystems, electrical systems, AC/heating, transmissions, steering, and suspensions.

By 2020, the number of vehicles 12 years old and older will increase by 15 percent. Currently, there are 57 million vehicles that are 16 years and older. As cars grow older, the need for repairs becomes more common. Over time, systems and materials will degrade. With the steady increase of older cars on the roadway, this gives an optimistic outlook for the auto repair industry.[3] Automotive service demand is directly dependent upon consumption. The basic formula is miles driven multiplied by the number of cars on the road. While it is true there is an increase in average age of vehicles on the road due to improvements in manufacturing and

engineering practices, aging US infrastructure has had conversely affected the auto service industry as well.

6. Industry Resilience

Stability and economic opportunity in the automotive service industry is undeniably tied directly to America's great love affair with the car. In cases of economic declines, consumers are more likely to keep their cars longer as disposable income becomes less plentiful. Industry revenue continues to increase at an estimated average annual rate of 3.2%. Industry market revenue reached $59.5 billion from 2010 to 2014 after the great recession of 2009.[5] In recessions, consumers consider it more economical to maintain their fixed assets, rather than taking on a new bank note.

As mentioned previously, there are an estimated 247 million vehicles registered in the United States, and that number continues to increase by over 3.5 million each year since 1960.[5] The global automotive aftermarket industry is expected to reach $722.8 billion by 2020.[6] In 2016 the North America automotive repair and maintenance services market was estimated to account for more than 25% of the market share in the global automotive repair and maintenance services market. North America and Western Europe are estimated to collectively account for about 50% of the total market.[7]

7. Opportunity

The industry is highly fragmented. The 50 largest companies generate less than 10 percent of vertical revenue.[9] Leaders identified in the global automotive repair and maintenance services market are: Jiffy Lube International Inc., Driven Brands Inc., Asbury Automotive Group Inc., Sumitomo Corporation, Belron International Ltd., Monro Muffler Brake Inc., Firestone Complete Auto Care, Goodyear Tire & Rubber Co., and Carmax Autocare Center [9].

Larger commercial repair shops can maximize use of diagnostic equipment and have advantages in purchasing, distribution, and marketing. Small companies compete effectively by providing superior, personalized customer service, or by offering specialized services filling a niche in the market. Successful businesses must be proactive in recommending services, encouraging feedback and personalizing offers on recommended services. One of the major trends likely to govern the global automotive repair and maintenance services market is remote diagnostics. This enables real-time monitoring of vehicle parameters to evaluate its performance against specifications.

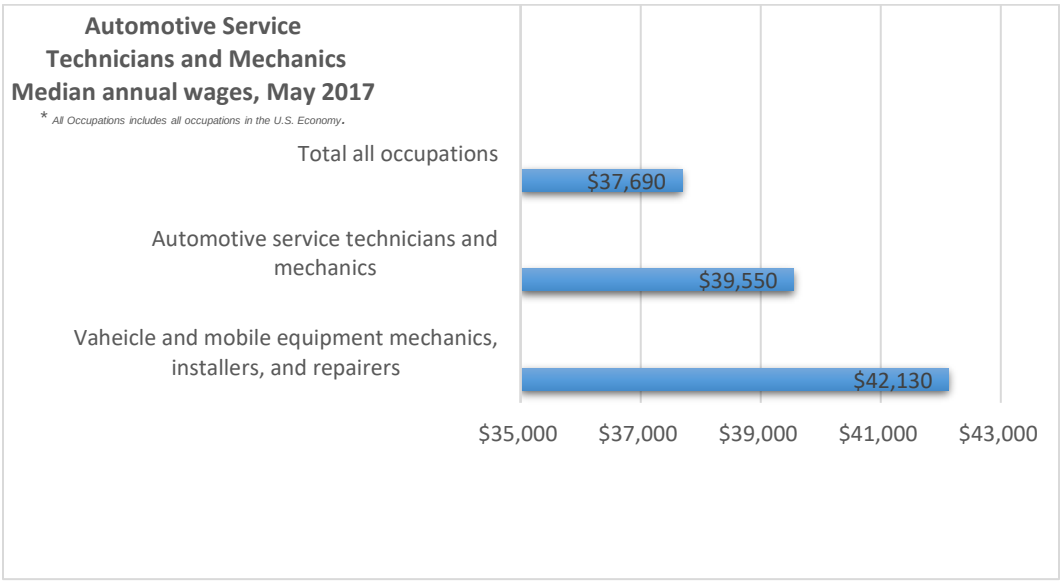
The average price of a new car or truck in the U.S. is roughly $33,560.[9] This provides plenty of opportunities for repair shops, which saw nearly seven percent sales growth during 2014.[10] Older vehicles require more frequent repairs to keep vehicles running satisfactorily. The typical

car on the road in the U.S. is a record-high 11.5 years old, according to a new IHS Automotive survey. The average age of the U.S. vehicle fleet has increased 17% in the last ten years.[7]

8. Employment

Employment for auto mechanics is expected to grow by 6 percent between now and 2020 according to the Bureau of Labor Statistics[1]. Growth in demand will be offset somewhat by slowing population growth and the continuing increase in the quality and durability of automobiles, which will require less frequent service. Additional job openings will be due to the need to replace a growing number of retiring technicians, who tend to be the most experienced workers [1].

The median annual wage for automotive service technicians was $39,550 in May 2017. The median wage is the wage at which half the workers in an occupation earned more than that amount, and half earned less. The lowest 10 percent earned less than $22,610, and the highest 10 percent earned more than $65,430. Many experienced technicians working for automobile dealers and independent repair shops receive a commission related to the labor cost charged to the customer. Under this system, which is commonly known as “flat rate” or “flag rate,” weekly earnings depend on the amount of work completed. Some repair shops pay technicians on an hourly basis instead. Most service technicians work full time, and many work evenings or weekends. Overtime is common. Hybrid propulsion (and other new systems) require additional training for mechanics. New designs also can require new diagnostic tools.



Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics

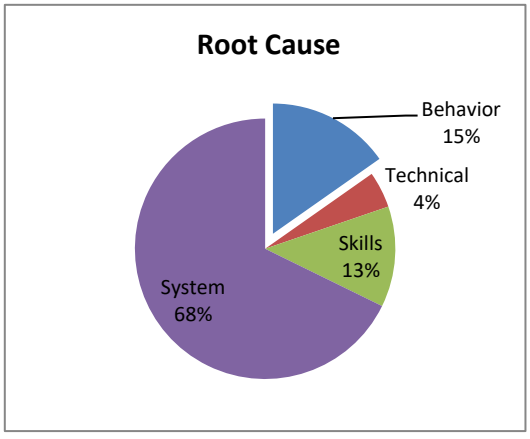
9. Economy of Scale

Efficiency can have a significant impact on profitability for automotive service providers. Efficiency is the measurement of actual time spent performing a given repair vs. the estimated time it should take. Improving efficiency will result in increased sales and higher profit margins.[25] There are many possible factors affecting labor productivity growth, including changes in technology, capital investment, capacity utilization, organization of production, and improved skills of the workforce. Parts and sales (labor is a substantial part of sales in auto repair) are needed to be profitable. Productivity per bay looks at the same idea. Example, five work bays that can each produce seven hours per day, per work bay times five days a week produces 175 hours of billable labor per week.

Target profit margins should be set for labor, parts, and tires. The goals should be geared to attaining a reasonable profit while remaining competitive. Price and cost are the two basic variables that determine gross profit margins.[14] It is important to identify and project future overhead costs when setting profit margin goals. Directing efforts at driving costs down will ensure that desired profit margins are achieved.

Running an efficient maintenance repair facility is paramount to profitability in the automotive repair and aftermarket instillation market. Development of a lean business process framework will drive MTTR cost down and bay availability up. The return on investment by adopting such a process is attributed across the organization to improved processes handoffs, maintainability, lower material cost and lower cost of asset ownership.

In one study an average of 45% of the mechanics' non-value-added activities during a typical day were determined to be redeemable, allowing for a large improvement potential. The strategy for such improvements to core people, process and technology run concurrently with a focus of a continuous improvement framework.
Results of a study indicated-



- Time on Tools (TOT) average among the mechanics was 39%. The range of TOT was 20% to 58%. While this may seem low, it is common and not unexpected.
- Time doing diagnosis: 10%
- Time communicating: 3%
- Idle time/no activity: 17%. Idle time was spent mostly in waiting for parts to arrive. Often time even with multiple jobs ongoing, mechanics found themselves unable to progress without parts.
- Duties related to another role: 19%. This was the most common distraction from pure TOT. Purchasing and vendor management took up much of this time. Also trips away from the shop for errands were major interruptions.
- Breaks: 6%

- Duties related to another role: 19%. This was the most common distraction from pure TOT. Purchasing and vendor management took up much of this time.

Profitability drives every business. The challenge in achieving profitability is in setting prices and managing costs. Prices will be determined by what the market will bear. Likewise, costs are largely set by resource availability. This means if the technician has greater availability, the lower the price they will command. In automotive repair, the costs directly associated with the repair process are labor and parts (including tires). Indirect costs include the cost of the building, utilities, staff personnel, etc. Gross profit is calculated by subtracting direct costs from sales price. Actual profit is calculated by subtracting indirect costs from gross profit.[14]

The opportunities in the automotive industry will continue to grow. Automobiles are essential to most of the American communities. Owners tend to take pride in their vehicles and count on experienced, professional businesses to help keep them running long. The industry is diverse and immense. Increased complexity of the computerization of autos requiring specialized, electronic tools will continue draw consumers to repair shops. With the cost of new vehicles continuing to rise, Americans are becoming more aware of the importance of preventative maintenance. They are preserving their investments and driving them farther.

10. Conclusion

Fueled my consumerism and the extensive road and highway system in the continental United States the automobile has ingratiated itself in nearly every aspect of American culture. Automobiles are the extension of the self and marketing campaigns reveal just how well the automotive manufactures understand the complex demographics that make up the America consumer. Afterall, “we are what we have and possess" Tuan [26]

The consumerism that fuels this love affair is not without consequences to the environment and the people these mechanisms serve. Through awareness, inevitable individual responsibility translates into consumer action. Whether the action is the purchase of more efficient and eco-friendly vehicles, or the utilization of regional transit systems, clearly consumers are being influenced by their perceptions.

The changing climate has awoken consumers to global warming and the automobile’s contribution, as stated above. Worldwide the clean air business sector is forecasted to increase demand 10% in the next decade driven by increased demand in transportation services and by tighter international and regional regulatory limits on diesel emissions. Increased regulation has necessitated the “Clean Air” industry - which in the US alone employs approximately 85,000 Americans with domestic annual sales of $26 billion USD.[27] The air pollution control market has the potential to grow by 30.18 billion USD during 2021-2025 and the market’s growth momentum will accelerate at a compound annual growth rate of 6%.[28] The economic benefit of the clean air industry goes deeper than jobs; the enormous health risk these technologies mitigate is expected to save global economies trillions of dollars over the next decade.

Even with all the new technology build into the cars, the increased production of EV and ride sharing companies the automotive repair business is poised to continue to have significant demand over the next decade with exponential growth expected.

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