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# An Exploratory Study on the Advent of AI Technology Concerning Self-Driven Automobiles: Emphasis On the Economic Implications of Tesla and Waymo Companies on the US Economy

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## *Abstract*

Tesla and Waymo are two different models in the automotive space. Both of them work towards increasing safety processes on the road. Waymo operates via robotaxis, while Tesla works through the conventional way of selling vehicles, but has now entered the robotaxi space. Tesla earns far more profits, despite being an older company, but Waymo has started earning profits in the limited time it has been in existence. These are capital-intensive products, and the use of AI has made them more reliable in terms of their safety. This paper examines the impact of self-driven technology on employment potential and GDP, as well as its implications for sales revenue and employment in the automotive industries of Waymo and Tesla. In particular, it explores how self-driven technology may influence the employment landscape in the US economy. How does it affect the macroeconomic indicators like GDP and immigration policies of the country? What potential does this AI technology hold for automobile companies like Tesla and Waymo? The paper offers a close insight into the profits, sales, revenue, and employment of these companies. These and many such questions will be addressed throughout the paper.

***Keywords:*** *Autonomous Vehicles (AV); Tesla; Waymo; Technology (AI, Self-Driving Technology); Safety; Government Regulation; Sales, Revenue; Employment; Automation; Driverless Cars; Innovation*

## *1. Introduction*

Self-driving cars are also known as autonomous vehicles. The technology used in these cars was developed in 1920. In 1925, the Houdina Radio Control Company operated the first 'radio-controlled' car, equipped with a transmitting antenna and controlled by a person in another car that followed (Engelking, 2017). With this, one needed to have the skill of quick reflexes to prevent any accidents. In the 1930s, automated guided cars were exhibited at the 1939 World Fair, which were radio-controlled electric cars propelled by electromagnetic fields that were embedded in the roads the cars traveled. In

1953, RCA Labs created a system that required the use of wires that were buried in the pavement (Tate, 2016). These detector circuits sent impulses to guide the car to determine the presence and speed of other cars on the surface. Following the creation of the 'electronic guided system', researchers began making estimations as to when the system could be ready for installation on the public road. In the 1960s, the Bureau of Public Roads took into consideration the idea of the construction of an experimental electronically controlled highway. As research continued throughout the 1970s, Bendix Corporation was developing and testing driverless cars controlled by buried cables (Schreiber, 2023). The first self-driving car that did not require rails or wires under the road was designed by the Japanese Tsukuba Mechanical Engineering Laboratory in 1977. In the 1990s, autonomous vehicle technology gained momentum worldwide, with notable breakthroughs including the VaMP and Vita-2 vehicles in Paris traffic, Carnegie Mellon's "No Hands Across America" trip, and Ernst Dickmanns' autonomous Mercedes-Benz journey. Projects like ARGO in Italy and ParkShuttle in the Netherlands advanced lane-following and driverless transit. Toyota introduced adaptive cruise control in 1998 (Verpraet, 2018). The US government funded 'Demo' I, II, and III projects, with 'Demo' III (2001) showcasing unmanned ground vehicles navigating off-road terrain and coordinating group movements. From 2010 to 2013, companies like BMW, Audi, Toyota, and Nissan advanced self-driving car technology (Fagella, 2017). Nevada issued the first U.S. license for autonomous cars in 2012. By 2013, Nissan tested driverless cars on public roads, and vehicles like the Mercedes S-Class and Infiniti Q50 offered semi-autonomous features like lane-keeping and adaptive cruise control. In 2014, Induct Technology's Navia, an electric-driven shuttle, became the first self-driving car to be commercially available. By mid-2014, Google intended to build autonomous car prototypes from scratch. In the same year, Tesla Motors released its first version of the Autopilot, which was added to the Model S cars. The cars were able to change lanes, brake, control speed, and park correctly.

## *2. Literature Review*

The main reason for the emphasis on driverless cars has been and is 'safety.' According to the WHO (2015), 1.2 million people die in accidents each year. A larger number of them is due to human error. It is this 'human error' that could be reduced with driverless cars. These driverless cars are generally referred to as robotic vehicles that work without a human operator. Critical control functions, e.g., steering, throttle, and braking, occur without driver input. With the increasing number of road accidents, the US economy has encouraged the use of electric vehicles, which seem to have a higher safety index. The US government has provided grants and tax credits for producing these vehicles, including hybrid, plug-in electric hybrid, plug-in electric drive, and hydrogen fuel cell electric vehicles. With the advent of the internet and smartphone evolution, driverless cars have emerged as one of the key disrupters in the technology revolution, along with drones and the Internet of Things. Encouragement of EVs in America reduces labor costs and helps the economy through the deployment of capital in the production of these vehicles. As the economy is short on labor, the deployment of capital-intensive technology helps in saving costs eventually for manufacturers. It also helps in encouraging factories to stay in the US instead of moving out of the country.

### 2.1 Levels of Automation

Society of Automotive Engineers (SAE) International has provided five levels of automation, ranging from Level 0 to Level 5. Currently, self-driven cars have reached Level 2 automation, and some manufacturers have started offering Level 3 or 4. These levels are stated below. Autonomous vehicle technology is separated into six levels (0-5) based on automation capabilities. Level 0 has no automation, though it may include safety features like lane departure warnings or emergency braking. Level 1 offers driver assistance, controlling either speed or steering, such as adaptive cruise control. Level 2 allows both speed and steering control simultaneously under specific conditions, but the driver must remain attentive

with lane centering with adaptive cruise control. Level 3 introduces conditional automation, where the car can monitor its surroundings and drive itself in certain scenarios but requires driver intervention when needed. Level 4 is highly automated and capable of self-driving in most conditions, but it may stop safely if it's unable to proceed. Level 5 displays full automation, where the vehicle can drive itself in all situations without human intervention.

Table 1: Vehicle Automation Levels

| | Level 0 | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|---|
| **Level of Automation** | None | Driver Assistance | Partial | Conditional | High | Full |
| **Requires human driver?** | Yes | Yes | Yes | Yes | No | No |
| **Control speed?** | No | Yes, but not at same time as steering | Yes, under certain conditions | Yes, under certain conditions | Yes, under certain conditions | Yes |
| **Control steering?** | No | Yes, under certain conditions | Yes, under certain conditions | Yes, under certain conditions | Yes, under certain conditions | Yes |
| **Aware of driving environment?** | No | No | No | No | No | Yes |
| **Actions in conditions it cannot drive in (e.g., bad weather)** | N/A – Human driver in control | N/A – Human driver in control | Human driver must decide conditions are not appropriate and take control | Alerts human driver to take control | Implements safety procedures | N/A – Able to drive in all conditions |

Source:https://www.epa.gov/greenvehicles/self-driving-vehicles

### 2.2 US Government Legislation and Inclination towards Vehicle Automation

The US government has played three main roles: Regulator, Facilitator, and Participator (Schepis et al., 2023). It is these roles that have influenced policy frameworks and shaped autonomous vehicle innovations. Technology concerning AVs is being encouraged by sustained research and development efforts, which have synergized the integration into existing transport infrastructure. Besides just the prototype of AV vehicles, there have been dynamic changes that have taken place in insurance, law enforcement, and taxation. The main reason for encouraging this path is the improvement in safety, addressing traffic congestion (robotaxi), and accessibility (Krisher, 2024). In companies like Tesla and Waymo, amongst others, governments, instead of being passive, are providing an institutional environment for them to thrive. Different government policies will lead to wide variation in AV-enabled road systems that range from mixed traffic use on roads to setting up corridors only for AV vehicles.

### 2.3 The Government Faces a Dilemma in Trying to Balance Different Competing Goals

The government must find a balance between protecting public safety from the risk of immature or inadequately engineered AVs while also encouraging AV innovations that could provide safe transport outcomes. This means that the government acts both as an enabler and an insurer. As an insurer, it supports EV adoption through measures such as enforcing emission standards, ensuring charger safety, standardizing vehicle requirements, offering parking privileges, and prioritizing EVs in public procurement. The exact approach will depend on country to country, given the different economic, technological, social, and political environments. In countries where governments change in quick

succession or there are multiple levels of power with different levels of governmental policies, there is a likelihood of changes in terms of planning, policy coordination, infrastructure investment, and revenue collection. In labor-intensive countries, like China, India, and other Southeast Asian countries, the acceptance of such automated vehicles is likely to reduce employment opportunities. But in developed countries, like the US, which are capital-intensive, AV vehicles are encouraged and accepted.

## *3. Methodology*

There is a significant amount of research on the technological progress of autonomous vehicles (AVs), but most of it has focused on engineering performance, sensor systems, and related rules and regulations. There remains a significant gap in comparative economic analysis between different business models in the AV space, particularly between Waymo's robotaxi service model and Tesla's vehicle sales model. There hasn't been much real-world research on the long-term profitability, market crossover potential, or macroeconomic effects of these two different strategies. Also, even though a lot of reports have talked about how AVs could make things safer, there isn't a lot of data on how they could lower the number of accidents and how that would affect the widespread use of AVs. There isn't much information about how the growing AV industry affects national productivity (GDP), resource allocation (labor and capital), and trade patterns, especially when it comes to job loss, job creation in tech sectors, and changes in capital investment. This study fills in the gaps by looking at the economic, safety, and labor effects of the Waymo and Tesla AV models and figuring out how they could change the way people and businesses move around and work. To address these questions, the methodology used is primarily quantitative. Reliable secondary data has been used to assess the impact on the economy, as well as sales and profit figures available for both models. These data points will be represented in tabular and graphical forms. Additionally, content analysis on website data has been conducted through QDA Miner Lite to examine online information and insights relevant to the study.

## *4. Analysis*

Tesla came into being in July 2003 with Martin Eberhard and Marc Tarpenning. It was named Tesla Motors after its inventor and electrical engineer, Nikola Tesla. In 2004, Elon Musk obtained the first funding round. In 2008, he was named chief executive officer, and the company began production of its first car model. Musk began as the chairman of the Board of Directors and the largest shareholder of Tesla.

Table 2: Growth of Tesla Cars from 2008 onwards

| **Year** | **Type of Model** |
|---|---|
| 2008 | Roadster Sports Car (first generation) |
| 2012 | Model S Sedan |
| 2014 | Tesla Autopilot |
| 2015 | Model X SUV |
| 2017 | Model 3 Sedan |
| 2020 | Model Y |
| 2022 | Tesla Semi Truck |
| 2023 | Cybertruck |
| 2024 | Cybercar and Robovan |

Source: https://en.wikipedia.org/wiki/Tesla,_Inc. Compiled as an own source.

The main aim of the company was to build a car manufacturer and a technology company. The core technology was in Battery, Computer Software, and Proprietary motor.

### 4.1 Funding Tesla Received

Table 3: Funding Tesla Received

| Years | Amount |
|---|---|
| Feb 2004 | $7.5 million (Series A Funding) |
| Feb 2006 | $13 million (Series B Venture Capital Funding) |
| May 2006 | $40 million (Third Round) |
| May 2007 | $45 million (Fourth Round) |
| Jan 2009 | $187 million |
| June 2009 | $465 million |
| July 2013 | NASDAQ-100 company |

Source: https://en.wikipedia.org/wiki/Tesla,_Inc.Compiled as an own source.

### 4.2 Models

The Tesla Autopilot (2015) was the first driver-assistance system.. All cars subsequently were provided with sensors and software, known as the "hardware version 1." Initial versions of the autopilot in Tesla were developed in partnership with a company called Mobileye. This was used especially for parking, and it discouraged car owners from parking in a risky manner. This remote parking technology allowed the automobile to move forward and back even when the driver was not in the car. The company focused on automation and solar energy. Tesla unveiled the first mass-market vehicle in April 2016, the Model 3 sedan. As the demand for this vehicle was very high, Tesla started investing in robotics and automation to assemble the model (save on labor costs), but the result was exactly the opposite, since automation slowed the production of the vehicles. This was finally resolved in 2018, and it became the world's best-selling electric car from 2018 to 2021. For subsequent models, Tesla invested heavily in various Gigafactories (Shanghai, Berlin, Mexico, Texas, etc.) by using cheap labor that kept costs in control and increased production and productivity. In October 2024, Tesla unveiled 2 autonomous vehicles, Cybercab and Robovan. Tesla has introduced its robotaxing service in Austin, Texas, on June 22, 2025, competing with Waymo, primarily enforcing the 'safety of humans'.

## *5. History and Growth of Waymo*

Waymo is the short form of "a new way forward in mobility". It is the autonomous vehicle division of Alphabet (Google's parent company), and has been able to reach many milestones that companies like Lyft, Ford, Uber, Honda, Toyota, and Tesla. It was in 2017 that an announcement was made stating that Waymo's fully self-driving vehicles are the safest and most advanced on the road without anyone sitting in the driver's seat (Hawkins, 2017). The vehicles have been on the roads of Chandelier, a suburb of Arizona. They are equipped with powerful sensors that provide 360-degree views of the world and short-range lasers that can see up to 300 meters (Park, 2022). These cars are "geofenced" within a 100-square-mile area and are equipped with instruments that collect data all the time. The project was started in 2009 in secret by Sebastian Thrun. The aim was that these autonomous vehicles would improve mobility, be safer, and free up time for people to do other things rather than spend time behind the wheel.

### 5.1 Milestones Waymo Has Achieved

Table 4: Waymo's milestones

| Type | Year |
|---|---|
| Toyota Prius | 2009 |
| Lexus 450h | 2012 |
| Firefly | 2015 |
| Waymo | 2016 |
| Chrysler Pacifica Hybrid Minivan | 2017 |
| First Company to Offer Services to the Public Without Safety Drivers | 2020 |
| Robotaxi | 2024 |

Source: Wikipedia, Compiled as an own source

Waymo offers full autonomous ride-share services in Phoenix, where its driverless vehicles are used for Uber Eats delivery. The confidence and comfort level of this vehicle have led several passengers who pay for their ride routinely to hop into Waymo vehicles that effortlessly move amongst human-piloted cars. This company has become the leader in the race to commercialize self-driving. Due to the result of superior safeguards, Waymo has managed to avoid serious road accidents, which have derailed its competitors. It is the company's ability to stay away from trouble and the investors' 'deep pockets' that have enabled the Robotaxi operations to be a success.

## 6. *Comparing Both Models*

Tesla claims that its systems can be deployed anywhere in the world, as it does not need pre-mapped information and relies completely on the camera to see the world around it and make decisions. Waymo's navigation system, on the other hand, is based on a two-dimensional map. Several of its test vehicles have started gathering an enormous amount of data on the roads where Robotaxis are being piloted. Both vehicles state that their systems can detect changes in the layout of a street in real-time when their vehicle are on customer rides. Tesla has removed ultrasonic sensors and radar units and is primarily working with video cameras for parking visualization, as well as helping autopilot systems to work. Both companies use several sensors to see the world around them. Both systems are actively monitored. The autonomous driver can reach out to a human fleet response system for additional information. Though former Waymo CEO John Krafcik adds, "the software is the ultimate decision maker."

### *7. Analyzing the Sales Revenue, Profits, and Export Over Time for Both Waymo and Tesla, and the Economic Implications of the Above on Employment and Other Macroeconomic Indicators*

#### 7.1 Sales Figures of Tesla Cars

| Year | Sales | YOY Change | US Marketshare | Marketshare Change |
|---|---|---|---|---|
| 2018 | 197,517 | 294.51% | 1.14% | 74.51% |
| 2019 | 195,125 | -1.21% | 1.14% | 0.67% |
| 2020 | 292,902 | 50.11% | 1.99% | 42.53% |
| 2021 | 301,998 | 3.11% | 2.02% | 1.40% |
| 2022 | 536,069 | 77.51% | 3.92% | 48.43% |
| 2023 | 670,000 | 24.98% | 4.31% | 9.18% |
| 2024 | 516,597 | -22.90% | 3.22% | -34.06% |
| 2025 | 0 | -% | 0.00% | 0.00% |

Figure 1: Tesla's Sales Figures

Source:https://www.goodcarbadcar.net/tesla-us-sales-figures/

#### Tesla's Revenue and Exports

Table 5: Tesla's Revenue and Exports (2022-2024)

| Year | Earnings(in US dollars) | Earnings (in US dollars millions) | Tesla's Exports (vehicles) | Tesla's Contribution to CA GDP (US dollars) | Tesla's Contribution to CA GDP (in percentage) |
|---|---|---|---|---|---|
| 2022 | 12.583 billion | 12,583 million | 271,095 | **5-7 billion** | **0.13%–0.18%** |
| 2023 | 15 billion | 15,000 million | 344,078 | **6-8 billion** | **0.15%–0.20%** |
| 2024 | 97.7 billion | 97,700 million | 259,558 | **7-9 billion** | **0.17%–0.22%** |

Compiled as an own source

**Export Revenue Shift: Tesla's European sales represent a significant portion of its export revenue, with a notable increase from 28% in 2023 to 40% in 2024**

The above table indicates the impact that Tesla has had since 2022 on the United States' GDP. State's GDP, employment, and earnings.

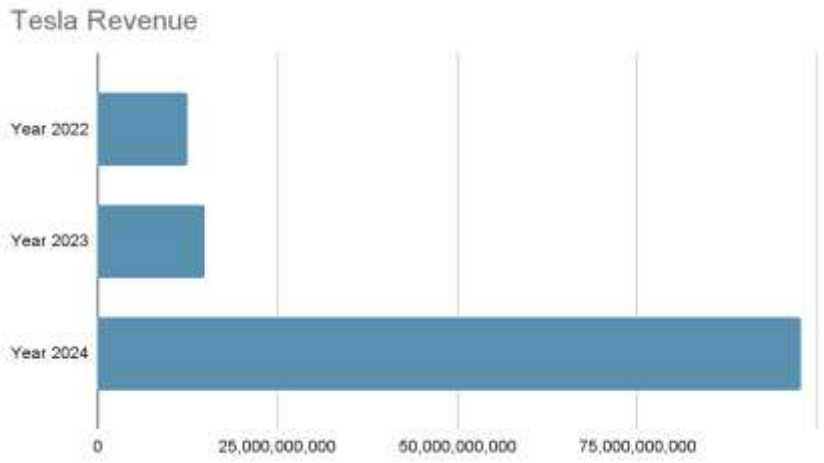


Figure 2: Bar graph based on Table 5

### 7.2 Sales Figures for Waymo Company

Since 2016, Waymo has completed more than 5 million autonomous trips in total, 4 million paid in 2024 alone (company information). This is a sevenfold increase from November 2023. In 2024, Waymo started offering paid, driverless rides to passengers in San Francisco, leading to over 312,000 rides in August 2024. If Waymo captured half of Uber's market (which does over 200 million rides per week), it could generate close to $300 billion in annual revenue.

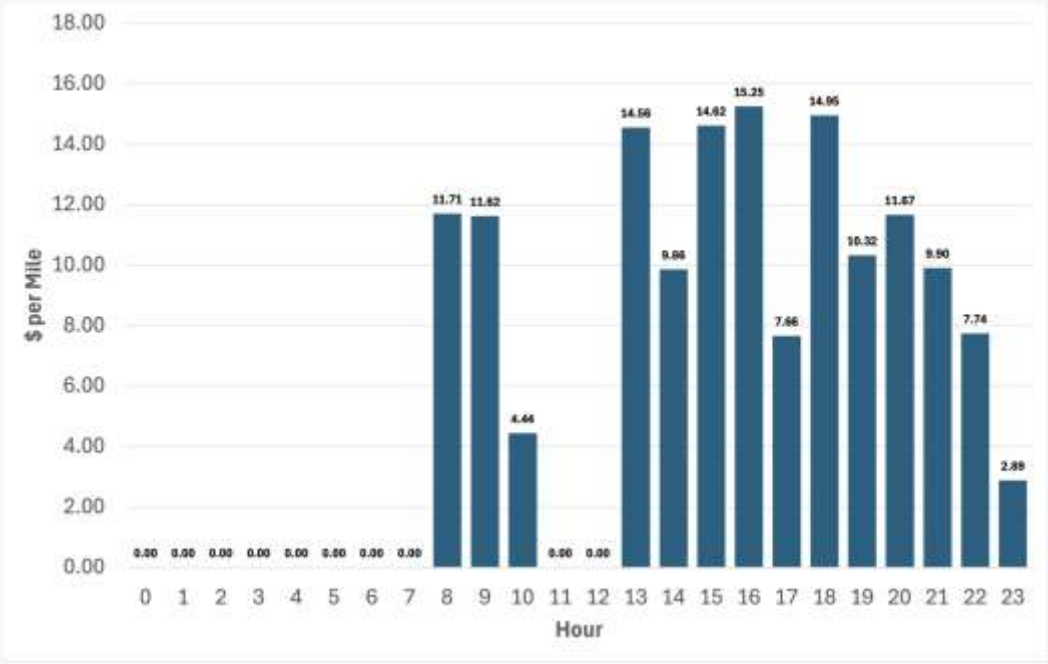


Figure 3: Breakdown of costs in US dollars per mile by daily hour for Waymo

Source:https://thelastdriverlicenseholder.com/2024/08/01/costs-of-waymo-rides/

Table 6: Waymo's Revenue Statistics

| Year | Number of Rides | Revenue ($11.48 per ride on average) |
|---|---|---|
| 2019 | No figures were available | – |
| 2020 | No figures were available | – |
| 2021 | 13,000 unpaid | – |
| 2022 | 312,000 | $3,581,760 |
| 2023 | 700,000 | $8,036,000 |
| 2024 | 4 million | $45,920,000 |

Compiled as an own source

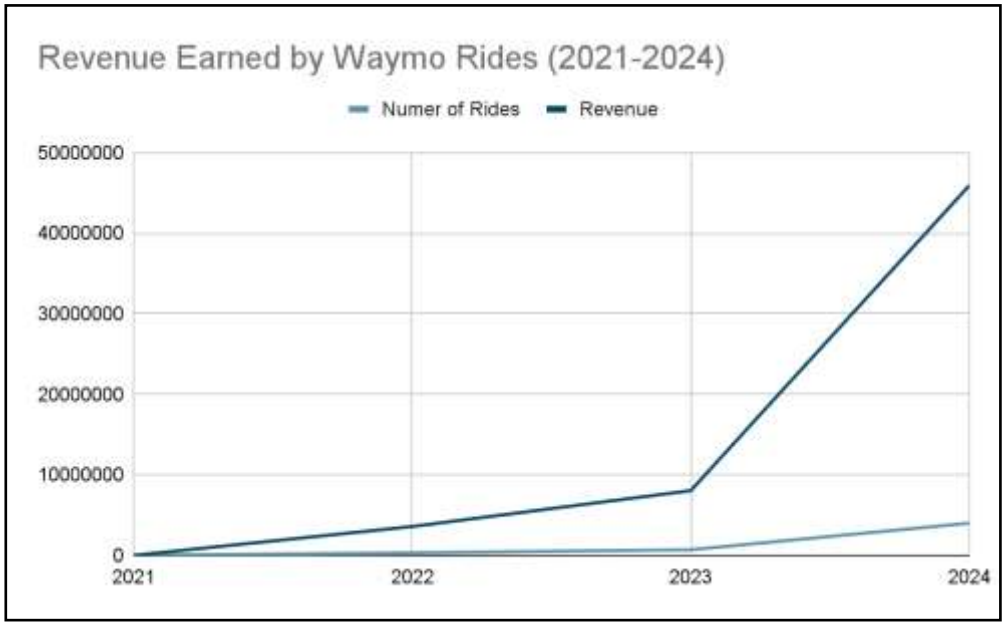


Figure 4: Graphical representation of Table 6

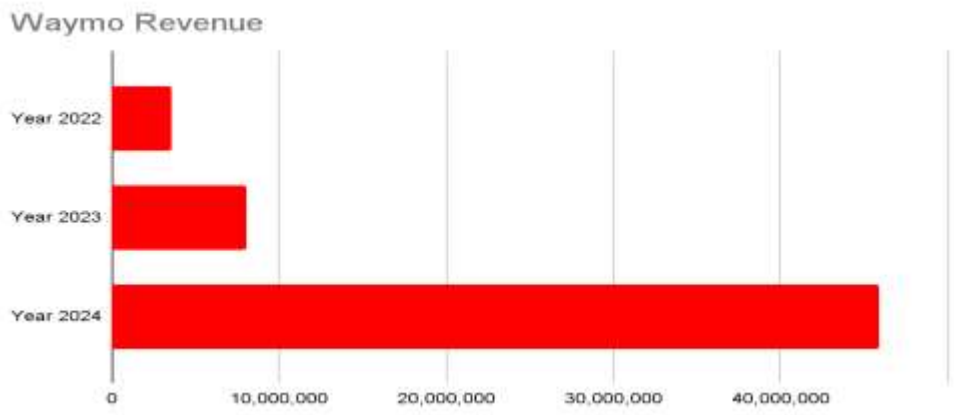


Figure 5: Bar graph based on Table 6
Compiled as an own source.

### 7.3 Comparing Employment Impact of Automotive Vehicles (Tesla and Waymo)

As Tesla's electric vehicle production has increased, the automotive industry has seen a shift in employment, with some traditional roles impacted and new opportunities emerging in areas like EV production, charging infrastructure, and battery technology, rather than the predicted automotive jobs. Several studies have indicated both sides of the coin, namely, that an expansion in EVs would reduce employment to some extent, and at the same time increase employment in other areas. The possible fear in a reduction in employment is where a large number of jobs are undertaken by robots given their ability to be precise and accurate in the value chain; but, on the other hand, the process of developing this sophisticated technology requires a huge intake of labor as also in the assembly of such vehicles the requirement for labor increases. The problem arises as to where the demand for labor has shifted. In the US, this demand has shifted to states where there are no labor unions and uninterrupted production is possible. For example, between 2001 and 2022, Michigan saw a 43% drop in both motor vehicle parts manufacturing and motor vehicles manufacturing employment. In 2022, the two non-union states, Kentucky and Alabama, accounted for 12% of motor vehicles.

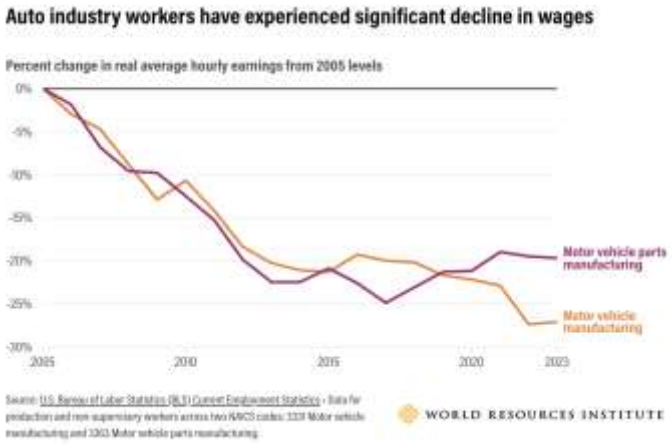


Figure 6: Percent change in real average hourly earnings from 2005 levels
Source:https://cleantechnica.com/2024/06/14/navigating-the-ev-transition-4-emerging-impacts-on-auto-manufacturing-jobs/

The above indicates an increase in automotive vehicles, and also possibly an increase in inflation, as well as employment in those states that have trade union activities. Vehicle and vehicle parts manufacturing employment. $85.6 billion of announced private EVs in 2022 have occurred in just five Southern states – Georgia, Tennessee, South Carolina, North Carolina, and Kentucky (right-to-work states), as they are non-union states. A 2022 study by researchers at Carnegie Mellon University has indicated that assembly-related labor hours for EVs are greater than for internal combustion engine vehicles. Automakers are vertically integrating production by moving manufacturing of all parts in-house so that there is greater control over the supply chain and intellectual property rights. They are also moving towards joint ventures and partnerships, especially with South Korean companies, so that the labor wage component further reduces (given the fact that wages are far cheaper in inlabor-surpluss South Korea than it is in labor-deficient US states).

### 7.4 Factors that Impact Labor Demand as Production of EVs Increases

The initial stages of deploying EV technology increase the demand for the workforce. Companies that are starting EV production focus on high-end vehicles, which require quality assembly products using a higher quantity of skilled labor. As the demand for vertical integration increases, it results in higher in-house production, resulting in a further increase in demand for labor.

### 7.5 Tesla

Table 7: Tesla's employee count (2010-2024)

| Year | Total Employment Count | Profit Earned (millions of dollars) |
|---|---|---|
| 2010 | 899 | - |
| 2011 | 1,417 | 204 million |
| 2012 | 2,964 | 413 million |
| 2013 | 5,859 | 2,013 million |
| 2014 | 10,161 | 3,198 million |
| 2015 | 13,058 | 4,046 million |
| 2016 | 17,782 | 7,000 million |
| 2017 | 37,543 | 11,759 million |
| 2018 | 48,817 | 21,461 million |
| 2019 | 48,016 | 24,578 million |
| 2020 | 70,757 | 31,536 million |
| 2021 | 99,290 | 53,823 million |
| 2022 | 127,855 | 81,462 million |
| 2023 | 140,473 | 96,773 million |
| 2024 | 125,665 | 97,700 million |

Compiled as an own source

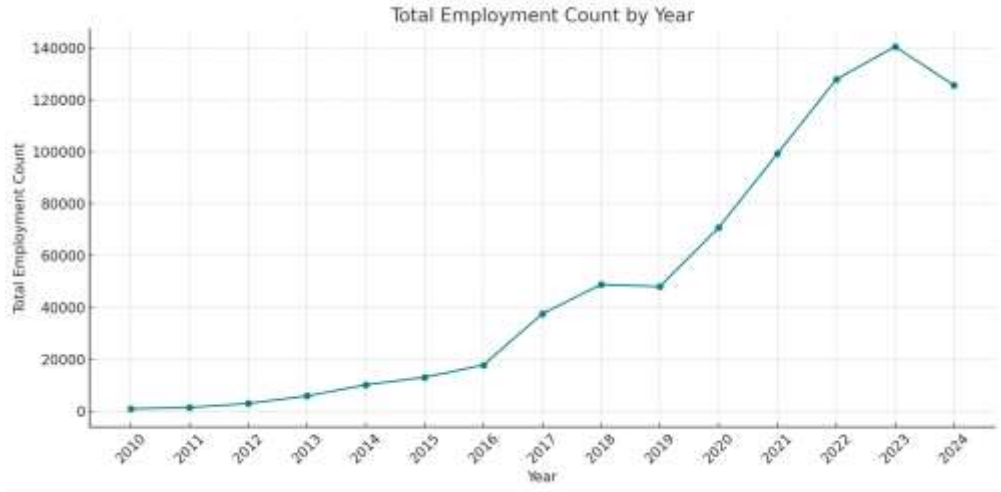


Figure 7: Tesla's Employment Count (2010-2024); Graph based on Table 7

Vertical integration has resulted in the adoption of superior innovation and technology, resulting in a reduction in the labor workforce.

### 7.6 Waymo

Waymo's manufacturing process, like Tesla's, is primarily capital-intensive. Waymo's autonomous vehicles require sophisticated hardware like LiDAR and radar, which are expensive.

Table 8: Waymo's Employee Count (2016-2024)

| Year | Workers Employed | Profit earned |
|---|---|---|
| 2016 | 800 | - |
| 2017 | 1,500 | - |
| 2018 | 1,800 | - |
| 2019 | 2,000 | - |
| 2020 | 2,200 | - |
| 2021 | 2,400 | - |
| 2022 | 2,600 | $3,581,760 |
| 2023 | 2,500 | $8,036,000 |
| 2024 | 2,918 | $45,920,000 |

Compiled as an own source.

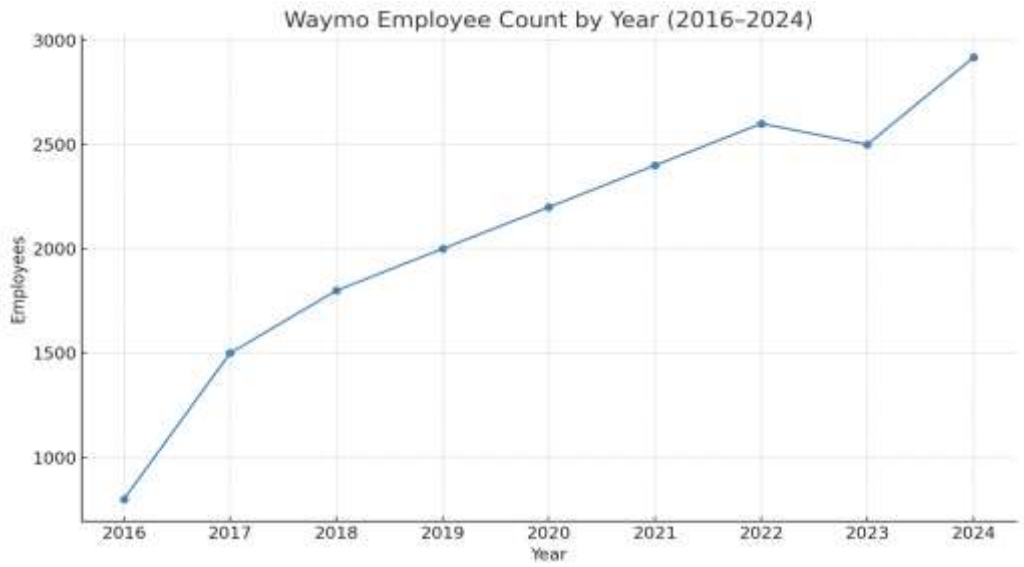


Figure 8: Graphical representation of Table 8

The above table and graph indicate that Waymo, too, like Tesla, is capital-intensive. The major difference between the two is that Waymo sells rides while Tesla sells vehicles. Waymo started becoming profitable in 2022. Waymo has the most driving data, while Tesla relies on their cars using Autopilot mode, which has so far recorded 1.3 billion miles.

### *8. Impact of AI on Tesla and Waymo*

AI is likely to turn the automobile sector towards further automation with extensive use of robots and minimum use of labor, turning this industry towards a highly capital-intensive one that aims at precision, further reduction in labor cost, and high productivity. Earlier, this industry required labor at the 'assembly' stage, but with the advancement of AI, the use of labor is declining for both Tesla and Waymo.

### 8.1 Tesla

A breakdown of Tesla's global production capacity indicates that the Shanghai factory assembles the maximum number of cars for the simple reason that labor is cheaper in China compared to the American and European economies. In US dollars, the labor cost per hour is between $7 (Georgia) and $16 (California), while in Shanghai, China, it is $3.70. The breakdown of the models for 2024 includes several key factories. Fremont Factory in California produces 550,000 Model 3/Y and 100,000 Model S/X annually. Meanwhile, Giga Shanghai leads with 950,000 Model 3/Y per year. In Europe, Gigafactory Berlin contributes 375,000 Model Ys annually. Lastly, Giga Texas adds 250,000 Model Ys and 125,000 Cybertrucks each year (Kane, 2024).

**The above indicates clearly that whatever labor is employed is at the Shanghai plant, where the labor cost is minimum.**

### 8.2 Waymo

As Waymo cars are not built from scratch, the company has tied up with the Hyundai Ioniq 5 and the Jaguar I-Pace to assemble its concept of 'robo-taxi'. These are manufactured in Georgia, where the labor cost is $7 per hour, and in Austria, where it's around $11 per hour, unlike any other state in the US, where minimum labor wages are higher and where labor is unionized. The use of AI technology increases

safety and productivity, as the algorithms are developed to adequately ensure the above. The adoption of robotic technology may further displace labor. Initially, this process might be expensive, but over time, economies of scale would set in.

### 9. Limitations Faced While Comparing Both Companies

Various intrinsic issues came up in the comparison of these two companies, as the profit models were very different. In the case of Waymo, one had to convert the number of hours that the vehicle ran into an average amount earned per ride, which was $11.48 per ride. In the case of Tesla, the earnings were based on the cars sold. The revenue earned by Waymo was in millions, compared to Tesla, which was in billions. This required the profits to be indicated on two separate graphs for better understanding. Waymo is a comparatively newer concept compared to Tesla.

### 9.1 Future Prospects of Waymo vs. Tesla (The two different models of AV and revenue generation)

The robotaxi form of functioning that Waymo works on seems to be the next step that Tesla may adopt. They are starting trials of this form of transport in Texas, likely in 2025. The main forms of earnings of automotive companies seem to be selling car models to private individuals, selling models for taxi services, servicing and motor parts, insurance, and subsidies from the government.

The taxi form of service that is provided by companies like Waymo may well be a game-changer in terms of earnings and how companies like Waymo earn their income. With the AV technology and the safety of Waymo vehicles. It is quite likely that the profits earned by the company may increase exponentially. These AV vehicles are likely to take over the market from other taxi services like Uber, etc. It would be a great impetus for companies like Waymo to expand their reach, not only in the USA but also in other countries of the world, as the increasing emphasis on saving the environment grows. A comparison of data from both companies has indicated that providing AV technology for both robotaxis as well as personal cars would increase the sales and revenue potential. The type of technology that is used by Waymo seems to be safer, and may be the reason that they have entered the robo-taxi space. Tesla, on the other hand, is working on a different AV technology that it has adopted in the personal vehicle space.

### *10. Conclusion*

Increasingly, automotive companies have steered towards AV vehicles. That has simultaneously saved and is saving the environment as well as the lives of passengers, pedestrians, and drivers. The type of technology and sales model adopted by Tesla and Waymo are different. The target users for both these companies are also not the same. Both have achieved high sales and revenues for their product. Waymo, being a newer company, is achieving profit through the robo-taxi model. While the older Tesla company is earning through the traditional model of selling cars, and has recently entered into the robotaxi sphere. Both companies aim to spread their expertise to other states in the US and other countries in the world. Tesla has spread to a large number of States in the US and is attempting to enter other economies. Waymo, on the other hand, has restricted itself to providing taxis and competing with companies like Uber and Lyft. The most important fact for these companies is putting ‘life first’ as the foremost priority. Despite the safety aspects, the problem with driverless cars is the lack of public trust. These cars are proposed as a suitable alternative to fossil fuel-driven vehicles. The public’s concern relates to Trust, Security, Privacy, Reliability, and Liability. Given these factors, it is accepted that these cars may not be as widely accepted as the self-driving ones, but their use from 2018 onwards has increased as technology has improved. Besides their use in closed environments, like university campuses, golf courses, airports, holiday parks, and retirement villages, they have increased their visibility and popularity. This is a percurser for them to sell their models to private owners. They are expanding their reach by entering cities as a replacement for both taxi systems and other non-automated models.

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