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# AUTOMOBILE MANUFACTURING INDUSTRIES IN NIGERIA - A WAY FORWARD. A CASE STUDY; ENUGU/ANAMBRA STATES AUTOMOBILE PLANTS

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## ABSTRACT

Vibrant automobile manufacturing industries have played significant roles in the industrial growth of many countries. Nigeria however, is yet to develop a viable automobile manufacturing industry comparable to that of the developed countries. Therefore, to this end, a combination of research instrument - questionnaire and observations were employed in collecting data targeting the automobile assembly/manufacturing companies that are present in the country through Pie chart and tables. The study determined that no enough qualified automobile engineers resulting to the production of low quality parts and components. The sector is characterized by the use of conventional machine tools, rudimentary wielding and forming processes to produce low profile parts likewise in small quantities. Computer Numeric Control Machine (CRCM) tools are virtually none in existent in the sector. About 48% of the workers in the industries are mechanic with less involvement of drawing aid applications such as Computer Aided Design (CAD). The welding standards employed in the industries are not as comparable to that of the international standards for joining of components. Due to lack of experts and finances in the industries contributed to the inefficiency of the Automobile productions.

## I.0 INTRODUCTION

An automobiles is a motorized vehicle powered by an internal combustion engine used to transport people from one location to another that includes motorcycles, tricycles, trucks, buses, vans, amongst others used for land-transport of people and goods and powered by a fossil fuel based internal combustion engine.[1]

Automobile industries have played a major role in the socio-economic development of many countries as they immensely add values to the economy of many nations,[2,4,5,6] For instance, the automobile industry played a significant role in the economy of United States of America, in 2010 it accounted for over 674,000 jobs (58%) of all U.S employment.[3] The industry has also played an important role in the socio economic development of many countries and according to,[4] it could be considered as an important measure of the industrial level of any country as it boosts the economy of a country.

## 2.0 METHODOLOGY

The methods involved in this study includes questionnaire and observations.

## 3.0 ANALYSIS OF THE RESULTS

Table 1.0 indicates that 50% of the respondent attended primary or junior secondary school, 30% attended senior and technical collages, 12% attended diploma and 8% have degrees showing low technical know-how

**Table 1.0: Qualification of Worker's in the Industries.**

| Percentage | Frequency | |
|---|---|---|
| Primary/ JSS | 25 | 50 |
| SS/Technical | 15 | 30 |
| Diploma | 6 | 12 |
| Degree | 4 | 8 |
| **Total** | **50** | **100** |

The pie chart in figure 1 shows the percentage frequency of the automobile engineers, technicians and the mechanics. This clearly indicates that there are less numbers of the engineers compared to the technicians and mechanics in the manufacturing industry.

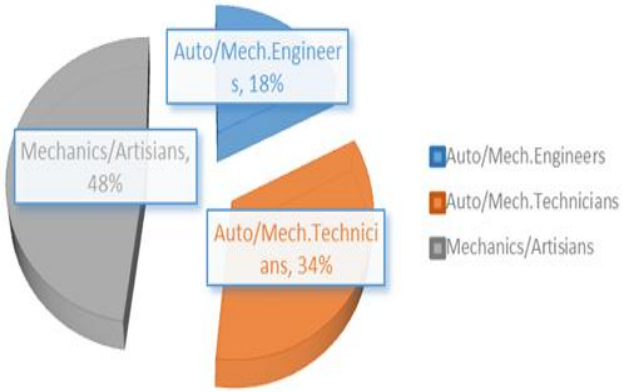


**Fig. 1: Professional Respondents.**

Table 1.1 shows that 46% of the workers in the industry have working experience of 6-10 years, 34% have 15 years and above working experience, 16% have 1-5 years' experience and 4% have 11-14 years' experience. From the research 46% are mechanics showing that there is little or no involvement of the engineers in the automobile industries in Nigeria.

**Table 1.1: Respondents Working Experience.**

| **Percentage** | **Frequency** | |
|---|---|---|
| 1-5 years | 8 | 16 |
| 6-10 years | 23 | 46 |
| 11-14 years | 2 | 4 |
| 15 years and above | 17 | 34 |
| **Total** | **50** | **100** |

Table 1.2 indicates that only 20% of their workers are mechanical engineers indicating poor growth of the automobile industry.

**Table 1.2: Numbers of Automobile Engineers Engaged.**

| **Percentage** | **Frequency** | |
|---|---|---|
| A 0 | 28 | 80 |
| B 3 | 7 | 20 |
| **Total** | **35** | **100** |

Table 1.3 typically shows the low involvement of technician in the automobile industry out of 100% only 6% of the companies visited employ the knowledge of technicians.

**Table 1.3: Number of Mechanical/Automobile Technicians.**

| **Frequency** | | **Percentage** |
|---|---|---|
| None (0) | 28 | 82 |
| 3 | 6 | 18 |
| **Total** | **34** | **100** |

Table 1.4 indicates that 70% of the companies visited do not employ computer aided design experts, but use to draw manually caused imperfection in the production of parts.

**Table 1.4: Uses of Drawing and Diagram in Manufacturing of Automobiles Parts.**

| **Frequency** | | **Percentage** |
|---|---|---|
| Manual drawing | 15 | 30 |
| Computer aided design (CAD) | 0 | 00 |
| None (neither CAD nor manual drawing) | 35 | 70 |
| **Total** | **50** | **100** |

Table 1.5 clearly shows that 22% of the company fabricates exhaust system while 78% do not fabricate but import all their parts.

**Table 1.5: Automobile Exhaust System Produced.**

| | Frequency | Percentage | |
|---|---|---|---|
| Yes | 11 | 22 | 22 |
| No | 39 | 78 | 100 |
| **Total** | **50** | **100** | |

Table 1.6 indicates 90% of irregular power supply resulting to low production of consumable parts, while 10% of frequent breakdown of machineries due to poor conditions of the machines.

**Table 1.6: Irregular Power supply On Using Machine Tools.**

| | Frequency | Percentage | |
|---|---|---|---|
| | | | |
| Yes | 45 | 90 | 90 |
| No | 5 | 10 | 100 |
| **Total** | **50** | **100** | |
| **Frequent machine breakdown** | | | |
| Yes | 5 | 10 | 10 |
| No | 45 | 90 | 100 |
| **Total** | **50** | **100** | |

Table 1.7 indicates that 64% of the companies manufacture their motor vehicle parts locally and 36% import the body parts.

**Table 1.7: Building of Motor Vehicle Bodies.**

| | Frequency | Percentage | |
|---|---|---|---|
| Yes | 32 | 64 | 64 |
| No | 18 | 36 | 100 |
| **Total** | **50** | **100** | |

Table 1.8 indicates that 33.33% fabricate tipper truck buckets, 62.5% fabricates buses and coaches and 6.25% fabricates fuel tankers in their companies.

**Table 1.8: Types of Vehicle Bodies Built.**

| Frequency | | Percentage |
|---|---|---|
| Tipper truck bucket | 10 | 33.33 |
| Buses and coaches | 20 | 62.5 |
| Fuel tankers | 2 | 6.25 |
| **Total** | **32** | **100** |

Table 1.9 indicates that the most common used component in the automobile industry in the country is metal-steel which indicates its cheapness and availability in the market.

**Table 1.9: Material Used in the Manufacture of Vehicle body.**

| **Frequency** | | **Percentage** | |
|---|---|---|---|
| Metals-steel | 40 | 100 | 100 |
| **Total** | **40** | **100** | |

Table 1.10 indicates that welding is mostly the used in the automobile industries to fabricate parts.

**Table 1.10: Method of Fabrication Used.**

| **Frequency** | | **Percentage** |
|---|---|---|
| Welding | 75 | 100 |
| **Total** | **75** | **100** |

Table 1.11 indicates that 80% use arc welding method, 14% use metal inert gas welding method and 6% use resistance shield welding method in the production of parts in the automobile industry.

**Table 1.11: Types of Welding Methods Used.**

| | **Frequency** | **Percentage** | |
|---|---|---|---|
| Arc welding | 24 | 80 | 80 |
| MIG welding | 4 | 14 | 94 |
| RSW | 2 | 6 | 100 |
| **Total** | **30** | **100** | |

Table 1.12 indicates that 80% of the respondent's use visual inspection to check welded parts during fabrication.

**Table 1.12: Method Used to Test Welded Joint.**

| **Frequency** | | **Percentage** | |
|---|---|---|---|
| Visual inspection | 32 | 80 | 80 |
| Chipping hammer | 8 | 20 | 100 |
| **Total** | **40** | **100** | |

Table 1.13 indicates that 72% of the welding methods used do not conform to the international standard of welding and 28% used the welding standard as compared to international standard of welding.

**Table 1.13: Welding to International Standard.**

| Frequency | | Percentage | |
|---|---|---|---|
| Yes | 8 | 28 | 28 |
| No | 20 | 72 | 100 |
| **Total** | **28** | **100** | |

Table 1.14 indicates that 28% employed the Nigerian standard while 72% do not employ any standard at all.

**Table 1.14: Welding Standard Used.**

| | Frequency | Percentage | |
|---|---|---|---|
| **NG Std** | 8 | 28 | 72 |
| None | 20 | 72 | 100 |
| **Total** | **28** | **100** | |

Table 1.15 indicates the companies visited do not use robots due to low educational background and technical know-how.

**Tables 1.15: Use of Robots.**

| | Frequency | Percentage | |
|---|---|---|---|
| No | 47 | 100 | 100 |
| **Total** | **47** | **100** | |

## 4.0 CONCLUSION

- Employment: a country as large as Nigeria having up to a hundred universities that graduate students on yearly basis is faced with problem of unemployment. But if there are functional automobile industries and factories of automobile parts, graduate can be employed in the sector.
- Increase in gross domestic product: when large number of the work force of a country is engaged in manufacturing and design, new ideas will be generated. There will be rapid increase in the gross domestic product, which in turn will assist the government to provide and carter for its citizenry by providing social basic amenities such as good road, good hospitals, standard schools, portable drinking water amongst others.
- Availability of products: automobile when manufactured will help to revive the Ajekutta steel industry which will also reduce the cost and stop the rapid importation of automobile into the country, making it easy for average Nigerians to own and purchase brand new car of his or her choice.

## 5.0 Problems Militating Against Automobile Industries in Nigeria

- Poor management: Due to lack of funds from the government all the existing companies in the country are in extension and no new design has been developed or manufactured since year 2005.
- Poor electricity: no country can ever develop without constant power supply. Electricity is very essential in an automobile plant in that it helps to reduce the cost of production.
- Poor policy implementation: the establishment of automobile industry in Nigeria was based on policy, but due to lack of policy implementation the sector suffered setbacks in the manufacturing of the products.

## 6.0 The way forward

- Government at the federal level should ensure adequate funding and checking of all automobile industry in the country.
- Government's responsibility to ensure that constant power supply is available nationwide because it is of paramount important.
- Government at all levels must purchase cars, trucks, buses, vans from the automobile companies produced in the country.

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