

STUDY OF ECONOMICAL IMPACTS OF AUTOMOTIVE MUFFLER FOR NOISE REDUCTION

Dr.Amit Kumar Gupta¹

¹Department of Mechanical Engineering, Institute of Engineering & Technology, DAVV, Indore
Email: ¹akgupta@ietdavv.edu.in

Noise pollution is the most serious issue in today's globe. Traffic noise is the primary source of noise pollution. Highway traffic noise causes problems in the surrounding communities, particularly where there is a high volume of vehicles moving at a high speed. Noise pollution is harmful to people's health. Two-wheeler vehicle noise is the most common source of traffic noise. In order to reduce the amount of noise generated by two-wheelers, The year 2019-20 has been very challenging for the entire world. The impact of the pandemic, the virus name COVID - 19 has an unpredictable and serious impact of the lockdown on small trade and business. The small business man and the trader, whose lively hood is depended on the daily work or daily income bases, showing their concern about the survival in the pandemic situation, many of the small businesses were restricted due to social distancing and have to shift their businesses according to the demand of the urgent need of people and earning. This paper provides the analysis of the impact of the lockdown situation on the small businesses in the India.

Keywords: Emerging Trends for Muffler, E-Business, E-commerce

INTRODUCTION

Noise pollution has negative consequences for human health, such as reduced productivity and hearing loss. It's possible that it'll give you a headache and put a strain on your mind.

As a mode of transportation, two-wheelers are growing more popular. Because of the wide range of vehicles' intended applications, noise characteristics for this class of vehicles vary greatly. Under varying situations, the engine structure, gearbox, brakes, tyres, and aerodynamic flow are the main contributors to overall vehicle noise in most vehicles. Engine exhaust noise is one of the most common sources of noise in two-wheelers, which can be reduced by utilising an efficient muffler [1]. Covid-19 has been the world shaking Pandemic of the century. Starting with China in January in 2020, it has widely spread within no time in the corners of the world at large [2][3]. Developed as well as underdeveloped economies, densely populated as well as sparsely populated nations have been trapped by this pandemic over last one and a half year. Besides medical research to find out vaccination as an effective solution over this situation, a number of steps like social distancing, compulsory use of masks and time and again use of sanitization are some of the tools made mandatory by the government of India.

LITERATURE REVIEW

The impacts of world wide pandemic situations were so sudden and unpredictable that have caused unbelievable repercussions on various parts of civic as well as social life. Particularly the business activity had come to a standstill for number of days in the different parts of the nation [4][5]. The Central as well as State Government has taken stringent actions like application of Section 144 (Total Curfew, Total Lockdown, Partial Lockdown) all over the nation. The state of Maharashtra has also been badly affected over last one and half year.

We being commerce teachers have curiosity to understand the impacts of lockdown situation locally, in the various parts of the city of Pune, particularly on the small businesses. In fact, as

yet the Covid-19 situation is not under total control. The State Government with the District Collectorate has been trying out different solutions to come out of the situation. On one hand survival of human beings all over is the prime motive but re-establishing civic life like transportation, working of trade and commerce and the movement of human beings in normal situations has to be balanced out [6]. Perhaps, for well-established medium and large scale businesses and industries it might not be so difficult to survive and pull on for few months also; but for tiny/ small businesses like street hawkers and peddlers it has been the worst experience. (Shown in Figure 1)



Fig 1: Faults in Automotive Muffler

For the purpose of this research paper, the following research methodology has been adopted: Primary Data: In order to understand this living burning problem of studying the economic impacts of lockdown it was essential to collect Primary Data. For this purpose the questionnaire method has been adopted.

Secondary data on Covid -19 is widely available through media and Government Publications over last several months. Suitable part confined to our present research paper has been referred to. Hence, the Government notifications, statistics on Impact of Covid – 19 through Print, electronic and social media has been compiled for this research paper.

Impact of Covid – 19 on various businesses Tilak, P., Deshmukh, M., Phadke, S., & Hakim, S. S. K. A survey on online examination during COVID 19 pandemic: Perception of Management Students. Mentioned in her research paper that The need of applying management principles in all aspects of life has long been stressed to management students. In today's world, an individual's emotional quotient is valued just as much as his or her academic talents. The

epidemic of COVID 19 has taught everyone the value of adaptability, flexibility, efficiency, and multitasking.

Kandalgaonkar, S. R., & Harchekar, J. (2018). Impact of technology on retail grocery business of pune. The essential needs of human life have long been acknowledged as food, shelter, and clothing. Food supplies are seen as the most crucial commodities in both developed and emerging countries, and in years of severe shortages, inhabitants must rely on other nations, even importing the same, to survive.

The COVID-19 epidemic in Somaliland has prompted numerous businesses and retailers to close, causing unanticipated disruptions in various industry sectors. Short-term difficulties confront retailers and brands.

Including those relating to health and safety, supply chain, workforce, cash flow, consumer demand, sales, and marketing (Donthu & Gustafsson, 2020).

Coronavirus illness 2019 has had a large economic impact in addition to its influence on public health. Just a few weeks after the outbreak, the pandemic had already caused major disruption among small enterprises; around 25% of businesses had temporarily closed, and nearly all of these closures were related to COVID-19 (Bartik et al., 2020).

IMPACT OF COVID – 19 ON VARIOUS BUSINESSES

Tilak, P., Deshmukh, M., Phadke, S., & Hakim, S. S. K. A survey on online examination during COVID 19 pandemic: Perception of Management Students. Mentioned in her research paper that The need of applying management principles in all aspects of life has long been stressed to management students. In today's world, an individual's emotional quotient is valued just as much as his or her academic talents.

The epidemic of COVID 19 has taught everyone the value of adaptability, flexibility, efficiency, and multitasking.

Kandalgaonkar, S. R., & Harchekar, J. (2018). Impact of technology on retail grocery business of pune. The essential needs of human life have long been acknowledged as food, shelter, and clothing.

Hypothesis

For the purpose of this research paper the following hypothesis has been framed. Lockdown has affected adversely, the business activity.

Data Collection and Analysis

For the purpose of this research the data given below has been collected covering the following areas: Bhavani Peth, Katraj, Lavale, Khadakwasla, Maharshinagar, Swargate, Hinjewadi, Wanowrie, Hadapsar, Alandi, Bibwewadi, Parvati, Narhe and Kondhwa.

1a). Type of your business – A majority of respondents have undertaken the business of Vegetable Vending & Selling Food Items. Some other businesses under the scope were Skills Based Services, Retail, Providing assistance to Big Businesses, Stationery and a few other.

1b). Monthly turnover of muffler business

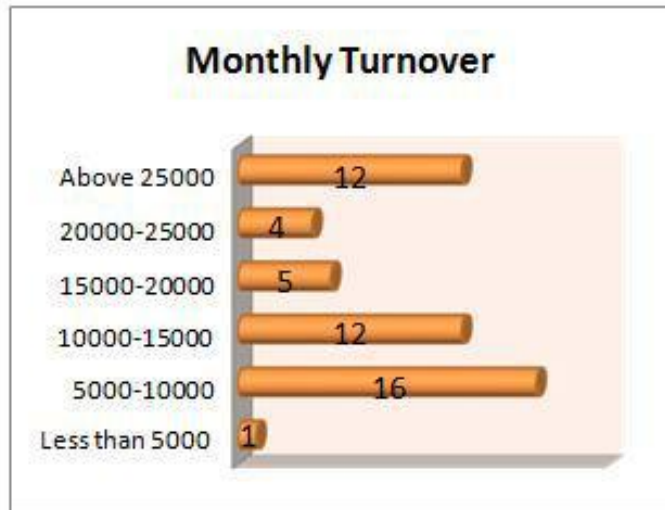


Fig2: Monthly turnover of muffler business

CONCLUSIONS

Majority of the type of business undertaken was vegetable vending & selling food items. Majority of the respondents have monthly turnover in the range of Rs. 5000/- to 10000/- Majority of the respondents operate from their own house or a small owned area as business place. Majority of them require loan amounting between Rs. 5000/- to 10000/- only to run their business. Majority of the respondents have made investments in fixed assets like furniture, tables, vehicle, etc. Majority of the respondents expressed that, yes they need the support of Loan facilities while expressing about their expectations.

Majority of the respondents expressed that they need working capital of up to Rs. 1000/- only. Another group feels that it is little over Rs. 5000/-. Majority of the respondents expressed that their business activity had come to a standstill for more than 5 months due to lockdown situation. Majority of them tried for alternative employment but could not get it. Majority of the respondents feel that, business units were allowed to remain open for at least few hours regularly with proper crowd control.

A majority of respondents have opined that the Government should come forth by extending cheap loan facilities for the Small business units. Majority of the respondents feel that 25% to 40% of Small/Tiny businesses might have completely shut down during the period of Lockdown. It has been expressed by the majority of respondents that it will take a period of 6 months to one year for regaining normal business situations after

Lifting up of the lockdown. Most of the respondents operate their business at a place owned by them while the others run their business at a rented place or temporary place by

the road side or have small shops or have a handcart. Owing to the situation due to lockdown, a majority of respondents had to keep their business shut for a time span of more than 5 months. Overall the respondents have stated that they had to keep their businesses shut for about 1 month to more than 5 months and only a small group of respondents were able to partially run their business.

REFERENCES

- [1] Aldon, G. (2011). Calculators as digital resources. Paper at CERME 7, February 9th-February 13th, 2011, Rzeszów, Poland.
- [2] Andrews, P. (1999). Some institutional influences on secondary mathematics teachers' use of computers. *Education and Information Technologies*, 4(2), 113-128.
- [3] Frazer RC. Measurement uncertainty in gear metrology PhD. dissertation UK: Newcastle University; 2007
- [4] Farhoomand, Ali(2005) *Managing(e) Business Transformation: A Global Perspective*, Palgrave Macmillan, Basingstoke.[5] A. Olofsson, S. Jonsson, identifying process parameters influencing gear runout, 49 (7) (2018)
- [5] L. Xiang, N. Gao, Coupled torsion-bending dynamic analysis of gear-rotor-bearing system with eccentricity fluctuation, *Appl. Math. Model.* 50 (2017) 569–584
- [6] E. Muto, G. Nishimura, Single flank gear mesh tester, *J. Japan Soc. Precis. Eng.* 29 (336) (1963) 53–60
- [7] S. D KalanderSaheb and K. Gopinath, —A comprehensive survey of gear test rigs, Report No 6, IIT Madras, Dec [1990] A study of gear noise and vibration, M. Akerblom and M. Parssinen, 2002
- [8] S. Ito, W. Gao, —Pitch deviation measurement of an involute spur gear by a rotary profiling system, *Precis. Eng.* 39 (2015) 152–160
- [9] T.X. Wang, L.D. Wang, —Technology of tooth pitch deviations measurement for master gears of precision grade 1, *Adv.Mater. Res.* 189–193 (2011)
- [10] Mats Åkerblom, —gear test rig for noise and vibration Testing of cylindrical gears Volvo Construction Equipment Components AB SE–631 85 Eskilstuna, Sweden
- [11] Timmers, Paul(2000) *Electronic Commerce: Strategies and Models for Business to-Business Trading*, Wiley, Chichester.
- [12] Leder, G. C., &Forgasz, H. J. (2002). Two new instruments to probe attitudes about gender and mathematics. ERIC, Resources in Education (RIE). ERIC document number: ED463312.