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Yijie Liu , Yi Liu , Jining Chen



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The Impact of the Chinese Automotive Industry: Scenarios based on the National Environmental Goals

Yijie Liu ^a, Yi Liu ^{a*}, Jining Chen ^a

^a School of Environment, Tsinghua University, Beijing 100084, China

Corresponding author: yi.liu@tsinghua.edu.cn

Abstract:

The Chinese automotive industry, one of the main drivers for the development of the nation's industrial economy, has been the largest automotive industry in the world since 2009. The annual output value of the Chinese automotive industry accounted for over 8.7% of China's Growth Domestic Product (GDP) and more than 27.4% of the mechanical industry output in 2009. The massive development of automobiles, however, introduces a series of environmental challenges. This study used a life cycle approach to assess the direct and indirect environmental impacts at the production and consumption stages of the Chinese automotive industry. A four-quadrant matrix was developed to present the key findings of the overall environmental impacts of the automotive industry, according to its constituent processes, in these two stages. The results suggest that the automotive industry of China significantly impacts the environment. The indirect impacts at the production stage dominate the total impacts of the automotive industry. The rapid development of the automotive industry has indirectly stimulated the development of the steel, plastic, rubber and other raw material industries, which further increases the pressure on the domestic environments. With respect to the potential alternatives in the next five years, a scenario analysis suggested that a rational growth of the automotive industry is highly desirable to mitigate the increased environmental pressures. Advanced technologies to reduce the demands

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