

Is car-steel's fate in the hands of China's fate?

Topic: Circular Economy and Physical I-O Tables

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To understand the change of car-steel's post-recycling fate of China in the last 30 years, this study quantitatively traces the fate of steel recovered from end-of-life (EoL) cars produced in different years by using the Matrace method (Nakamura et al., ES&T 2014) and Chinese IO tables from 1987 to 2007. All the secondary sectors are grouped into 5 categories: cars, buildings, civil engineering, machines, and others, which are of significant importance for ferrous materials. It turns out that most of the car steels are first recycled into machines, and then into buildings. The results of dynamic analysis show that once a unit of steel has been used in car production in 1987, the peak of the in-use stock of the steel recycled from these cars appears in 2000. It implies that the gap between production and reuse peak is 13 years. The corresponding gaps for the new cars produced in the year of 1992, 1997, 2002, and 2007 are 11, 11, 15, and 15 years, respectively. Meanwhile, the peak for the car produced in 1997 is the highest, because the shorter the car-life-span is, the more concentrated car scrap is. Furthermore, although only small proportions of car steel is reused into cars and machines, both proportions increase over time, indicating the quality improvement of recycling technology in China.

Keywords: Car steel, Dynamic material flow analysis, Input-output analysis, China