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[Abstract Title]

An investigation of initial recovery time of enterprises affected by COVID-19 in China using accelerated failure time model

[Abstract]

The COVID-19 outbreak has had a great impact on China's economy, society and people's lives. Chinese enterprises also faced tremendous challenges during the prevention and control stages of the outbreak, which restricted their production and operation activities. It is difficult to investigate the whole process of business recovery since most enterprises are still struggling in the impacts of COVID-19, however, studying initial business recovery and its key affecting factors would be also meaningful for understanding the whole recovery process and helpful for decision making. In this study, a questionnaire survey on the impact on enterprises during the epidemic period from February to March 2020 is conducted, and a set of relevant information of 300 enterprises in China is obtained. The data includes time to initial recovery and problems faced by companies in the early stages of recovery, such as employee panic, reduced orders, traffic restrictions and loan pressure etc. The result shows that manufacturing industry was mainly faced with affecting factors such as the proportion of temporary staff, length of approval time for work resumption, order reduction, loan pressure on the initial recovery of enterprises. Loan pressure had the greatest impact on the initial recovery of manufacturing industry. Manufacturing under loan pressure took an average of about 5 days longer to implement an initial recovery than manufacturing without loan pressure. While the initial recovery of non-manufacturing industry was mainly affected by the staff's salary, traffic restrictions, length of approval time for work

resumption. Traffic restrictions had the greatest impact on the initial recovery among these affecting factors. It took 11.7 days on average for the non-manufacturing industry to implement initial recovery when there were traffic restrictions, which was about 2.3 days longer than when there were no traffic restrictions. The study also found that the instantaneous recovery rate of both manufacturing and non-manufacturing enterprises showed a trend of increasing first and then decreasing. The instantaneous probability of non-manufacturing industry recovery at the 8th day per unit time reached the maximum, and the instantaneous probability of manufacturing industry recovery at the 11th day per unit time reached the maximum. This study can provide scientific reference for the subsequent recovery of enterprises, and be helpful for the formulation of government policies and enterprise decisions.