

# Creative Destruction in Organizational Capital: Evidence from the Sharing Economy in Japan and the United States

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The world is replete with underutilized assets and resources, which have motivated firms to create new and more efficient markets by exploiting online platforms. The trend exhibits a fast growth of sharing economy in service industries across the globe. Additionally, the underutilized assets also motivate technology firms to aggressively invest in enabling technologies. For example, the ultimate goal of Google's driverless car project reportedly is to eventually rid the need for households to own cars by using rental services. That is, the sharing economy not only can increase the efficiency of underutilized assets but can also accelerate technological progress in the economy. Furthermore, unlike their traditional counterparts, sharing-economy companies are in general low physical asset intensive but have superior business models to generate rapid growth. A prominent example is Airbnb, where the company has only 600 employees but the number of listed properties has surpassed that of the world's largest hotel chain.

In this paper, we propose an analytical framework where, in a service industry, to produce goods, a firm uses two types of inputs, labor and organizational capital. In the analytical framework, we examine how the introduction of new sharing technology affects a firm's value, investment behavior in organizational capital, and performance. The key hypothesis is that: when a new sharing technology is introduced in the industry, the existing incumbents, not adopting the new technology, cannot adjust the operational size and employment level in the short run, the effect of the introduction of new sharing technology will operate through the depreciation of organizational capital. That is, the existing incumbent will see its organizational capital depreciate faster, the increase in the depreciation rate of organizational capital leads to the reduction in the stock of organizational capital, and hence, its stock price. The data cover the hotel and transportation industries in both Japan and the U.S. for the period of 2002 to 2015. There are several key findings. First, we measure the intangible assets of sharing-economy companies and their counterparts in both Japanese and the U.S. hospitality and transportation industries. Second, firms adopting sharing technology have a higher degree of organizational capital intensity and accumulated a higher stock of organizational capital. Third, the creative destruction of the sharing technology has been shown on the estimated depreciation rates of organizational capital between the two groups. In general, the higher depreciation rate of organizational capital for existing incumbents implies that the value of their organizational capital is losing faster. Fourth, we show that the sharing technology shock caused a negative impact on the stock prices of existing incumbents but a positive impact on their counterparts

adopting the new technology. Last but not least, using the Uber case, we analyze welfare impacts of the new sharing technology and propose a new way to indirectly measure it. The analysis of the potential welfare impacts suggests the importance of the measurement of the price index of the transportation service to the GDP growth and productivity growth.