

## 論文の要旨

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論文題目 Essays on Economic Behavior

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Traditional economics is based on a rational choice theory which assumes that individuals are perfectly rational and behave in the way that maximize benefit and minimize cost. However, it is often acknowledged that individuals do not consider all the benefits and costs of various options when they make decisions in reality, but they exhibit bounded rationality and tend to choose satisfying options. Especially when individuals are under the influence of emotional arousal, their behaviors are likely to deviate from rational choice assumptions because they fail to make informed decisions even the costs of the action may completely outweigh the benefits. Ultimately, inconsistency in preferences over time may lead to sub-optimal decisions and irrational behaviors.

Previous studies show that knowledge and reasoning alone are usually not sufficient for making advantageous decisions. In addition, the importance of emotion in decision-making has been underestimated and largely neglected due to a disagreement on the measurement of emotions. Therefore, this dissertation investigates the factors associated with risky behavior (gambling and speed driving) and productive behavior (work productivity) and also explore the role of emotions in human behaviors. Education and specific form of education which is financial literacy are used as a proxy for rational decision-making ability and wearable biometric device developed by the TDK Corporation, Tokyo, Japan is used to measure emotions when people engage in different economic behaviors.

The title of the first paper is *“Financial Literacy and Gambling Behavior: Evidence from Japan”*. This paper was published in Journal of Gambling Studies in 2020 (Watanapongvanich et al., 2020). This study examines the relationship between financial literacy, financial education, and gambling behavior (measured as gambling frequency) among the Japanese population. The hypothesis of the study is that financially literate and financially educated people who use their knowledge to make sound financial decisions are less likely to gamble. The data used in this study is from a nationwide survey in Japan, the Preference Parameters Study of Osaka University in 2010. The results from the probit-instrumental variable model show that financial literacy has a significantly

negative relationship with gambling frequency, while university degree and financial education have no significant relationship with gambling frequency. In other words, a high level of financial literacy (with emphasis on knowledge of investments) significantly reduces gambling frequency. However, obtained university degree and received financial education in elementary school (with an emphasis on savings behavior) have no significant impact on gambling frequency in the Japanese context. The findings suggest that problem gambling may be mitigated by promoting financial literacy, but no such conclusion can be drawn for education and financial education.

The title of the second paper is *“Emotional Status and Productivity: Evidence from the Special Economic Zone in Laos”*. This paper was published in *Sustainability* in 2020 (Kadoya et al., 2020). This study aims to explore the relationship between workers’ emotional states (happy, angry, relaxed, and sad) and productivity by assessing on-job emotionality recorded using a specially designed wearable biometric device. The use of wearable biometric devices, which can track an employee’s emotional states, provides an opportunity to examine more objective components of the emotion-productivity link. The data was collected at KP Beau Lao Co. Ltd., a Japanese plastic toys and cosmetic products company in Savannakhet province in Southwestern Laos. Participants were 15 plastic toy painters. Mental status, daily output, and personal characteristics were recorded for three consecutive working days. Using random effects panel regression models, the results revealed that happiness, and no other emotional state (angry, relaxed, and sad), was significantly and positively related to productivity (operationalized as the log of daily output). However, schooling show insignificant relationship with productivity. These results have significant implications for organizational management in terms of designing work schedules and managing human resources. The changes in workers’ emotional state during working hours is likely to have an important influence on productivity. Thus, management could improve productivity by maximizing workers’ positive emotional experiences in the organizational environment.

The title of the third paper is *“How is Emotion Associated with Driving Speed? A Study on Taxi Drivers in Japan”*. This paper was published in *Transportation Research Part F: Traffic Psychology and Behaviour* in 2021 (Kadoya et al., 2021). The objective of this study is to examine how taxi drivers’ emotional states relate to driving speed by using a biometric device that tracks five different emotional states of drivers, including happy, angry, relaxed, sad, and neutral. The data was collected from 15 taxi drivers in Hiroshima, Japan for 15 consecutive days. Data on taxi drivers’ driving performance and personal characteristics were also recorded. The hypothesis is that drivers’ unpleasant

emotional states (angry and sad) lead to higher driving speed, while those in the pleasant emotional states (happy, relaxed, and neutral) do not increase driving speed. Using random effects panel regression models, the results revealed that angry and sad emotional states are significantly and positively related to fastest speed on highway. In contrast, neutral emotional state is significantly and negatively related to fastest speed on highway. However, the happy and relaxed emotional states show no significant relationship. The findings suggest that there is a positive relationship between negative emotional state (angry and sad emotional states) and faster driving speed on highway—especially when compare with neutral emotional state. In addition, university degree also shows negative and strongly significant impact on driving speed across models which indicates that high education is likely to decrease driving speed. This study contributes to the literature, that used simulated driving or mood induction procedures, by providing empirical evidence on the roles that emotional states play in explaining driving speed. Following the results of this study, taxi companies may track emotional states of taxi drivers while scheduling their driving assignments to reduce high speed driving on highways, which would eventually reduce the risk of accident.

The results in this dissertation show that education and specific form of education (financial literacy) have negative impact on risky behavior like speed driving and gambling. These significant results indicate that both education and financial literacy are proxy for rational decision-making ability that can help people make rational and advantageous decisions. For emotions, the results show that positive emotional state (happy) is positively related to work productivity. In contrast, negative emotional states (angry and sad) have significant impact on increasing driving speed while a neutral emotional state is related with decreasing driving speed. These findings indicate that positive emotion is associated with desired behaviors and negative emotion is associated with undesired behaviors.

This dissertation provides empirical evidence that people can engage in irrational behaviors such as gambling and speed driving. In addition, emotions also play important roles in decision-making process and people may not make decisions rationally when strong emotions are present. These results can serve as supporting evidence for policy makers to devise effective public policy, for example improving education and literacy programs to enhance people's decision-making ability and improving work environment for labors' emotional wellbeing. However, the interaction between decision-making process and economic behaviors are complex and the relationship should be further explored in other economic behaviors and in different context.

## References

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