

**DEPARTMENT OF MANAGEMENT SCIENCE AND
STATISTICS RESEARCH SEMINAR SERIES**

**Friday, April 21
10 - 11 a.m. (CST)**

BB 1.01.20L, Multipurpose Room



Dr. Suresh Muthulingam

Professor of Supply Chain Management

Smeal College of Business, The Pennsylvania State University

“Does Legalizing Marijuana Degrade Operational Efficiency?”

Abstract

Marijuana is increasingly gaining legal acceptance. In the U.S., from 1996 to 2016, 28 states and the District of Columbia legalized marijuana for medical use. In this period, studies find that when individuals use marijuana, they experience several negative consequences such as reduced attention, hampered memory, and poor task completion—which indicates that marijuana degrades the outputs of human resources. But human resources are a critical input into manufacturing and are vital for ensuring operational efficiency (see, e.g., Boudreau et al. 2003), which suggests that increased marijuana access could adversely affect manufacturing. In this study, we examine whether legalizing marijuana affects the operational efficiency of manufacturing facilities. Specifically, we leverage a state-level quasi-experimental setting that evolves from the staggered enactment of marijuana legislation by different states. We augment this setup with data on the operational performance of manufacturing facilities obtained from the Environmental Protection

Agency's Toxics Release Inventory program. Our dataset spans 1987-2016 and includes details on the operational performance of 45,720 manufacturing facilities in the U.S. We find that medical marijuana legislation (MML) adversely affects the operational efficiency of facilities in the state—the average waste released by facilities increased by 5.22% after MML. Further examination reveals that facilities undertake fewer managerial and technical modifications to their operational processes, which clarifies the mechanisms that degrade operational efficiency. Finally, we find that recreational marijuana legislation (RML), which increases marijuana's access for the general population, leads to further degradation of operational efficiency—the effect goes beyond the impact of MML.

Short Bio

Suresh Muthulingam is a Professor of Supply Chain Management at the Smeal College of Business, The Pennsylvania State University. He received his PhD from UCLA's Anderson School of Management. Before coming to academia, Suresh worked in the industry for 12 years, in various leadership positions at IBM, PricewaterhouseCoopers, and Coopers & Lybrand.

His research lies at the intersection of operations and sustainability, focusing on environmental and behavioral issues in operations management. He investigates how behavioral factors influence the adoption of sustainable operating practices such as energy efficiency within firms and how operational knowledge can be leveraged to enhance operational practices such as quality management within firms and supply chains. His research has appeared in Manufacturing & Service Operations Management, Management Science, Production and Operations Management, Journal of Operations Management, Energy, and Strategic Management Journal.