

# Monotone Activities in Fluctuating Contracting Environments

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## Abstract

A common feature of dynamic contracting environments is that the terms of the periodic interaction (e.g., business opportunities) vary, perhaps stochastically, over time. We consider general fluctuating contracting environments with symmetric information and identify a systematic effect of this variability on qualitative properties of optimal contracts. First, we highlight this effect in a stationary model where the agent is incentivized to exert effort on multiple types of stochastically arriving tasks. We characterize the unique optimal contract and show that the agent's (task-specific) effort decreases and his wage increases over time. Next, we develop the notion of "separable activity," which reveals that the above properties are manifestations of the same, more general, monotonicity result. We then identify a condition on a separable activity that guarantees that the activity will evolve monotonically over time, in a direction that favors the agent, in any optimal contract and any fluctuating environment. The condition is tight in that, whenever it is violated, the monotonicity result is reversed in some contracting environments.

Keywords: Dynamic contracting, Stochastic opportunities.  
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