DISSERTATION ABSTRACT

Economists widely believe that, absent strategic considerations such as agency problems, financial incentives represent the dominant and effective stimulator of human productive activities. In production settings that are cognitively demanding, however, the effectiveness of financial incentives may be moderated by individual heterogeneity in cognitive abilities, intrinsic motivation and other personality characteristics. Even if strong financial incentives induce high effort, both financial and cognitive resources may be wasted for individuals with insufficient cognitive abilities. This prediction, if warranted, calls for attention to cognitive abilities in designing efficient incentive schemes in firms, experimental settings and elsewhere.

My dissertation examines how financial incentives interact with intrinsic motivation and especially cognitive abilities in determining cognitive performance. In Rydval (2003), I present an initial literature review, particularly noting lack of empirical evidence on the interaction between financial incentives and cognitive abilities. Building on the review, Chapter 1 of the dissertation illustrates that *general* cognitive abilities appear at least as important for performance in a psychometric test as does a sizeable variation in piece-rate financial incentives.

Chapter 2 focuses on the interaction between financial incentives and *task-specific*, as opposed to domain-general, forms of cognitive abilities the role of which has long been studied in cognitive science and behavioral decision research. Using a task situated in an accounting setting, I show that the effect of task-specific cognitive abilities – proxied by accounting knowledge – on performance is stronger under performance-based financial incentives as compared to flat-rate incentives. The interaction effect arises because performance-based financial incentives lead to better performance only for individuals with more accounting knowledge.

In the core Chapter 3, I show that the effectiveness of even high-powered financial incentives as a stimulator of performance can be moderated by cognitive abilities in a *causal* fashion. I measure general cognitive abilities by working memory – a robust predictor of general intelligence, and I design a time-series forecasting task that requires working memory ability. To identify the causality of working memory, I show that the effect of working memory on forecasting performance is stronger in a treatment featuring higher working memory load, after accounting for other cognitive and personality (especially motivational) performance determinants.

Establishing the causality of cognitive abilities is a prerequisite for credibly addressing fundamental economic interactions between financial incentives and cognitive abilities, such as how people perform under different incentive levels and schemes conditional on their cognitive abilities; how they self-select on their cognitive abilities into incentive schemes varying in expected return to cognitive abilities (and effort); and whether people are willing to purchase "external" cognitive abilities that would relax their cognitive constraints.