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Don't spread yourself too thin: parallel working and the risk of overwhelm

ABSTRACT: This project studies the production function of workers who are assigned to a set of tasks in each period and whose productivity is measured by the number of tasks they complete per period. We present a new theoretical model in which this productivity depends on effort, on the difficulty of tasks and, most importantly, on the accumulated backlog of assigned but uncompleted tasks. A crucial feature of the model is the distinction, in the backlog, between the "active" tasks (those on which the worker has started to operate) and the "inactive" tasks (those waiting to be started). The theory is dynamic in that for given history of assigned tasks the backlog evolves through time as a function of the number of tasks kept active contemporaneously. A key result is that the worker's rate of tasks completion (throughput) is inversely related to the number of tasks started by the worker in each period. Conversely, sequential work (starting only one task at the time and closing it before starting the next in line) increases the throughput and reduces the duration of task's completion. We conclude that parallel working generates overwhelm and reduces productivity.

The model fits the production function of judges and its predictions are verified in data from a sample of Italian judges that receive randomly allocated cases. We also analyze the trade-off between speed and accuracy of the decision, the latter being measured by the appeal rate. We discuss an optimal incentive scheme for judges, taking into account a number of multi-tasking concerns. Among the policy implications, we argue that the prescription requiring judges to immediately open the cases assigned to them is inefficient: this induces parallel working, reduces productivity and increases the duration of cases. Judges should work on a minimum number of contemporaneous cases closing them as quickly as possible before opening new ones.