

## ON THE DYNAMIC CONTROL OF MATCHING QUEUES

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We consider the optimal control of matching queues with dynamically arriving jobs. The objective is to minimize cumulative job holding costs over a finite time horizon. In the special case of linear (and equal across classes) holding costs, this is equivalent to maximizing the number of matched jobs. We introduce a multi-dimensional imbalance process that captures the number of additional jobs required so that *some* control policy could have matched all jobs that have arrived by that time (thus leaving all queues empty). The imbalance process facilitates the construction of a lower bound. Under a so-called match-pooling condition, we devise a discrete-review matching policy that asymptotically – as the arrival rates become large – achieves the imbalance-based lower bound.