Reshaping Bank Branch Networks due to Mobile Banking

Abstract:
The proportion of US bank customers using mobile banking has grown from 29% in 2012 to 39% in 2014. This channel of interaction is likely to keep growing due to a further increase in the adoption of smartphones, improvement in the quality of mobile banking apps, and increasing awareness of these apps. As a consequence, some banks have reported that they may reduce their number of branches by half over the next decade. The adoption of mobile banking displaces many banking functions performed through other channels, such as automated teller machines (ATM), telephone banking, and online banking. Using geo-coded transaction data from a large consumer bank, we develop a dynamic structural model that represents consumers’ preferences for online and physical channels. This model takes into account changes in banking behavior due to variation in the branch network structure as well as the introduction of the mobile channel. We use this model to predict the timing and type of transactions across channels. The knowledge gained with the demand model is then used to design an optimal branch network in terms of capacities, amenities, location, and number of branches. Counterfactuals allow us to evaluate different levels of channel adoption—for example, when most consumers have adopted mobile banking—and consider its effect on banking transactions and, more important, on customer loyalty. Our model shows that all channels remain relevant; moreover, we found strong complementarity between physical and digital worlds. Therefore, instead of reducing the number of physical branches, banks should aim to adjust current branch capacities, specializing in transactions that cannot be served with digital channels. We predict that digital channels will diminish but never replace physical channels, instead the branch and ATMs network will be redesigned correspondingly.

Keywords: Mobile Banking, Channel competition, Dynamic Structural Model, Branch network