

American Association of Wine Economists  
Optimal Consumption Paths for Wine:  
Hotelling Goes to his Cellar

By

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Abstract

This paper develops a conceptual model of the optimal consumption path for cellared wine. We first assume that the cellar owner holds a pre-specified amount of wine over a period of time in order to consume. As the wine ages, its quality changes in some known manner, and the cellaring of wine imposes costs that depend upon the amount stored. Given that the costs must be incurred to improve the wine's drinking quality, there is a tension between aging the wine and absorbing the storage costs. The model shows how the aging profile affects the decision about how much to consume in each period. We examine three qualitatively different aging profiles that we label as representative of Beaujolais Nouveaux, California Zinfandel, and Premier Cru Classe Bordeaux wines. Each varietal has a particular qualitative aging profile, and the aging profiles affect when consumption begins, peaks, and tapers off. We then modify the basic model to consider some generalizations of the problem. One generalization is wine-drinker's "retirement problem" whereby he/she must decide how much retirement income to devote to stocking the cellar versus alternative uses of wealth. We sketch out a simple version of this problem that accounts for the interplay between the personal utility discount rate, rates of return from storing wine, and rates of return in alternative allocations of retirement income. A final and more difficult problem is one where purchases are made continuously as different vintages are released. We discuss situations where the budget and cellar space are limited as well as cases with less binding constraints. Finally, we draw some lessons to guide wine drinking behavior from our modeling exercise. These include how variety should influence the optimal consumption profile, how alternative uses of wealth should influence consumption, and how one's age in the retirement period ought to affect optimal consumption.