

A Survivor Analysis of the Canadian Wine Industry: 1984-2009

by

Don Cyr
Associate Professor of Finance
Dept of Finance, Operations and Information Systems
Faculty of Business

Joseph Kushner
Professor of Economics
Department of Economics

Tomson Ogwang
Professor of Economics
Department of Economics

Brock University, Ontario, Canada

Abstract for Consideration
AAWE 4th Annual Meeting, Davis, California

Keywords: Canadian wine production, survivor technique, Stigler, firm size.

Conference Attendees: D. Cyr, J. Kushner, T. Ogwang

Contact author:

Don Cyr
Department of Finance, Operations and Information Systems
Faculty of Business, Brock University
St. Catharines, Ontario L2S 3A1
Telephone: 905-688-5550, ext. 3136
E-mail: dcyr@brocku.ca

A Survivor Analysis of the Canadian Wine Industry: 1984-2009

Abstract

Although the history of Canadian wine making dates back to European settlers in the late 1800's, a significant wine producing industry, based upon domestically grown *vitis vinifera*, did not take hold until the late 1970's to early 1980's. At that time producers in the Niagara region of the province of Ontario and the Okanagan Valley of British Columbia began to realize that European grape varieties could be successfully cultivated and premium table wines produced. The 1988 free trade agreement between Canada and the United States and subsequent GATT (General Agreement on Tariffs and Trade) rulings provided a further impetus for the establishment of a premium wine industry through the removal of protectionist trade measures. Incentives offered by federal and provincial governments for producers to replace native North American grape varieties with *vinifera* grapes, along with the establishment of quality assurance standards and an appellation system under the VQA (Vintners Quality Alliance), resulted in significant growth in the Canadian wine producing industry over the past two decades. The purpose of this paper is to examine this growth within the context of optimal firm size, with a particular focus on the major wine producing provinces of Ontario and British Columbia.

Determining optimal firm size in an industry and the implied long run average cost curve has long been an area of interest in industrial organization because of its effect on market structure. Many factors, however, play an important role in the determination of market structure such as monopoly power, labour relations and governmental regulations. Consumer preferences can also have a major impact. It has been recently noted for example, that a significant and growing component of US consumers is focused on limited production wines, resulting in the growth of boutique or artisan winemaking. Almost half of the wineries in North America are now producing less than 15,000 cases per year and even some larger wine producers appear to be creating smaller wineries within their larger context (Caputo, 1007).

Although a number of techniques exist for determining cost functions and the optimal size of a firm, the wine industry not only exhibits a variety of firm sizes but is also vertically integrated, making it difficult to determine or model explicitly the cost functions for the various components. Survivor analysis is a long standing methodology first developed by George Stigler (1958) with the primary purpose of determining the minimum efficient size of a firm where all economies have been exploited. This information, which is indicative of long run average cost, is of value to potential entrants and also to policy makers and industry regulators. Although it suffers from several criticisms (see Flanagan (1986) and Giordano (2003) for succinct reviews), the advantage of the technique is that it implicitly incorporates the cumulative effects of all relevant market structure factors and provides for a useful "first pass" at returns to scale (Westbrook and Tybout, 1993).

Survivor analysis relies on Darwinian logic in that it assumes that over time efficient sized firms will tend to survive and remain in business whereas inefficient sized firms will decline and cease to exist. The approach involves classifying firms according to size and examining the output of size classes over time. If the market share of industry output of a size class falls over time, then that size class is

deemed to be inefficient, whereas if the market share of the size class increases over time, then that size class is deemed to be efficient. The methodology presumably indicates efficiency in light of all the factors that firms in an industry encounter. A number of recent studies employing the survivor technique as an empirical method of determining economies of scale include Giordana (2003 and 2008) and Sengupta (2004).

In the current paper we employ the Stigler survivor technique to examine the market structure of the modern Canadian wine producing industry over the establishment and growth period of 1984 to 2009. Using data from the *Wines & Vines Annual Directory*, individual wine producers are categorized into size classes as measured by annual production figures. The population distribution and market share of various firm size categories is examined, to determine whether an equilibrium or optimal firm size has been established over time. In doing so, we provide insight into past market structure changes as well as possible future size distribution of the industry. We also compare the results to those of similar studies of the Californian wine industry (Flanagan, 1986 and Cyr and Kushner, 2010).

References

- Caputo, T. 2007. Wineries within wineries, larger producers think small to boost quality of reserve-level wines, *Wines & Vines* 88, 24-7.
- Cyr, D. And Kushner, J. 2010. Optimal size in the Californian wine industry: a survivor technique analysis of 1984 – 2009. Presented at the *World Wine Markets by 2030 Workshop*, Australian Agricultural and Resource Economics Society National Conference, Adelaide, Australia, February 2010.
- Flanagan, A.B. 1986. A Survivor Analysis of California Wine Producers, Masters Thesis in Economics, Texas Tech University.
- Girdano, J.N. 2003. Using the Survivor Technique to Estimate Returns to Scale and Optimum Firm Size. *Topics in Economic Analysis and Policy*, 3, 1-21.
- _____. 2008. Economies of Scale after Deregulation in LTL Trucking: A Test Case for the Survivor Technique. *Managerial Decision Economics*, 29, 357-370.
- Sengupta, J.K. 2004. The survivor technique and the cost frontier: A nonparametric approach *International Journal of Production Economics* 2, 185-193.
- Stigler, G.J. 1958. The Economies of Scale, *Journal of Law and Economics*, 1: 54-71
- Westbrook. M.D. and Tybout, J.R. 1993. Estimating returns to scale with large, imperfect panels: An application to Chilean manufacturing industries. *World Bank Economic Review* 7(1), p.85-112.