



# Fluctuating demand and its impacts to a paper producer: Customer analysis



Esa Hämäläinen<sup>a,1</sup>, Olli-Pekka Hilmola<sup>b,\*</sup>, Lauri Hetemäki<sup>c</sup>

<sup>a</sup> University of Turku, Brahea, Centre for Maritime Studies, Maritime Logistics Research, Heikinkatu 7, FI-48310 Kotka, Finland

<sup>b</sup> Lappeenranta University of Technology, Kouvola Research Unit, Prikaatintie 9, FIN-45100 Kouvola, Finland

<sup>c</sup> University of Eastern Finland, Faculty of Science and Forestry, Yliopistokatu 7, Joensuu, Finland

## ARTICLE INFO

### Article history:

Available online 17 January 2015

### Keywords:

Paper industry  
Customers  
Profitability  
Cost management

## ABSTRACT

For the Nordic paper industry the years 2001–2007 were a culmination point as to paper production and deliveries. The study uses plant level empirical time series data from these years from one large integrated Finnish paper mill. The research data covers complete customer data and cost components, and a major supplier for European paper markets. The case company worked actively with a customer base and concentrated on the most profitable markets. However, some unprofitable deliveries, which still covered the variable and fixed costs, also supported the operation of the mill and the continuing of the 24/7 shift. The results indicate that even with matured and bulky products like paper, it is still possible to operate on the basis of separated pricing, some bargaining power, and customized focus. In this respect, the markets do not seem to follow the economic theory expectation entirely, that is, for such a mature and bulky product market price differentiation should not be possible. However, to utilize this, it requires up-to-date information system concerning internal cost accounting, together with an emphasis on the management to have an active role with the customer base.

© 2015 Elsevier Ltd. All rights reserved.

## 1. Introduction

European printing paper consumption per capita started to decline around 10 years ago. Hetemäki (2005) and Hetemäki, Hänninen, and Moiseyev (2013) highlighted that the Internet, electronic documentation, and the overall digitalization in communication and publishing are bringing major challenges to the paper industry in this region. In the US the process already started earlier in the late 90s, and the demand slump accelerated in the early 2000 (Hetemäki et al., 2013). In North America, the paper industry is mainly based on domestic production and imports have typically been less than 30% of the total demand (Lindqvist, 2009).

The purpose of this empirical case study is to examine and present in detail how in the business-to-business environment a paper mill tries to adapt to the fluctuating demand, low sales prices, and fierce competition from the customers. The aim is also to analyse if there exist any differences in profitability (in euros) and deliveries (in tons) between customers. In this study we focus on a matured, standardized bulk industry sector, the paper industry, and on those

export markets and customers which are located in a long distance from the production site. However, these types of industries and markets are typical for many sectors and countries (e.g. manufacturing industries in small open economies). Marquis and Trehan (2010) illustrate with the US manufacturing and service sector data that the manufacturing has been suffering from lower prices in comparison to the service sector for decades, and consumption in the US markets has not grown as compared to the growth rate of consumption of services, despite manufactured goods prices have been declining. In other words, they have been inelastic to price changes. According to Marquis and Trehan (2010), productivity growth improvement is the only way for manufacturers to respond to this fundamental change in the business environment. However, it should be noted that increasing amount of traditional markets have become unpredictable, and changes could take place in both ends of the supply chain, customers and key suppliers (Xia & Tang, 2011). Keeping the focus on poorly profitable customers can be dangerous. On the other hand, and as the Apple Inc. success has illustrated, picking certain customer groups to serve with selected and limited products and services simultaneously premium pricing them could lead to extraordinarily high profits (Haslam, Tsitsianis, Andersson, & Yin, 2013).

According to Hämäläinen (2011), the analysis of individual paper machines in Finland indicate that their economic

\* Corresponding author. Fax: +358 5 344 4009.

E-mail addresses: [Esa.Hamalainen@utu.fi](mailto:Esa.Hamalainen@utu.fi) (E. Hämäläinen), [olli-pekka.hilmola@lut.fi](mailto:olli-pekka.hilmola@lut.fi) (O.-P. Hilmola), [lauri.hetemaki@efi.int](mailto:lauri.hetemaki@efi.int) (L. Hetemäki).

<sup>1</sup> Tel.: +358 400 538 291.

performance remained somewhat on a same level during 2001–2009. However, it should be noted that during this period some of the poorly performing mills and facilities were shut down, so this does not depict the whole picture of the industry sector. This fact also illustrates that the only ways of the paper mills to adjust in the short- to medium-term are costs and revenues, yet significant changes to improve the manufacturing process (productivity) of a paper machine are not possible. The measures to improve profitability should therefore be focused on delivery volumes, logistics functions and customer profitability (or customer account profitability; later on in this manuscript meaning is the same) besides the crucial cost control. On the other hand, Hämäläinen (2011) showed that forecasting demand and economic figures was a challenge for the Finnish paper industry in 2001–2009. This was evident, e.g., from the wide gap between the anticipated and the realized economic figures on a monthly level.

Flint, Blocker, and Boutin (2011) remind us of the common knowledge that the marketing managers should understand what the value of their customer is in order to survive in competitive markets. Moreover, Vargo and Lusch (2004) argue that the evolution of marketing has moved from a *goods-dominant view*, in which tangible output and discrete transactions are central, to a *service-dominant view*, in which intangibility, exchange processes, and relationships are central. However, in the paper industry, which is the pure bulk production, this service orientation is rather low. On the other hand, Woodruff (1997) highlights that just understanding what a customer's current value is, is not enough, since it changes continuously.

Hämäläinen (2011) revealed that there are large monthly variations in paper deliveries between countries as well as customers, and that on the other hand, customers of the Nordic paper industry are widely scattered globally. Moreover, Rust, Kumar, and Venkatesan (2011) argue that attempts to predict future customer profitability with information obtained from customer databases have not been entirely successful. Especially cost calculations at customer level have not always been successful. Campbell and Frei (2004) discovered that it is easier to predict future profitability for some customers than it is for others (see also Hämäläinen, 2011). They found that current profitability may predict future profitability, yet not with every customer.

The 21st Century has been challenging for the European (and North American) paper markets: There has been structural change in demand due to digital media replacing print communication, new emerging economies are entering the global markets with increasing exports, and the competition has tightened (e.g. China). This structural change is clearly reflected in the Finnish paper production also, as shown in Fig. 1. Finland exports about 90% of its production, and the changes in export markets are

directly reflected in the domestic production. As long as paper has been produced in Finland – about 150 years – its production has always been growing. However, as Fig. 1 indicates, in the beginning of the 21st Century the growth first stopped and then started to decline. The production level in 2013 was about one third lower than in 2004 (the historical maximum level).

The declining demand and the higher competition in the markets has led to buyer's markets, and any price increases are very difficult to get through. In regions such as the Nordic countries, where the paper mills are located far away from the main export markets (distance to closest main market, Central European one, is 1500–2000 km away and logistics requires sea transportation mode as Finland is surrounded by Baltic Sea; Asian and North American markets are at least having 7000 km direct map “bird” distance, which is in reality much longer due to sea routes used), there is even an extra challenge to stay competitive due to high transportation and logistics costs (see Hämäläinen, 2011). In order to stay competitive and minimize losses, mills have to take concrete actions in order to analyse continuously and in detail the profitability of each customer, abandon those that are unprofitable, and try to keep the customers generating healthy profits.

Given the above background, it is interesting to analyse how in an eve of declining structural demand for paper, the mills chose and differentiated with respect of their customers in order to stay profitable. More precisely, the objectives of this paper are:

- our aim is to reveal with longitudinal data how and what intensity the changes in customer purchases in the main markets occurs in the Nordic paper industry. This has not presented earlier concerning the Nordic paper industry, how customer sizes of deliveries and customer profitability developed in turbulent European paper 2001–2007;
- to present that bulk industry have to market products even in normal supply–demand situation and also illustrate changes of customers behavior during lowering markets;
- to understand better through customer based data closures processes of the printing paper mills in later years;
- to study the characteristics of customers in four large markets; change in number of customers, number of lost customers, and number of deliveries;
- to examine the customer base and changes in it, and how these impact the mill's economic performance (in euros) and delivered quantities (tons);
- to reveal how sales prices, delivered tons and profitability have developed with the lost and the remaining customers during the research period;
- in wider macro-economic (society and employment) and industrial sector development perspective to analyse, what kind of outcomes in short-term old industries may produce with better customer focus.

In this study, *sales (invoiced) prices* multiplied with respective *delivery volumes* are understood as *revenues*, *net profit* is the revenues minus the production (variable and fixed together) and logistics costs. *Delivery* is understood as an order (in tons) delivered to customer, and *customer* is a synonym to “a consignee”.

The paper is structured as follows. First, brief theoretical background is presented in Section 2. This is followed by a closer look at the paper mill's value-added functions in Section 3. Next, we describe the data, its processing and analysis methods in Section 4. The results are presented in Section 5. Finally, discussion and conclusions together with insights to further research are presented in Section 6.

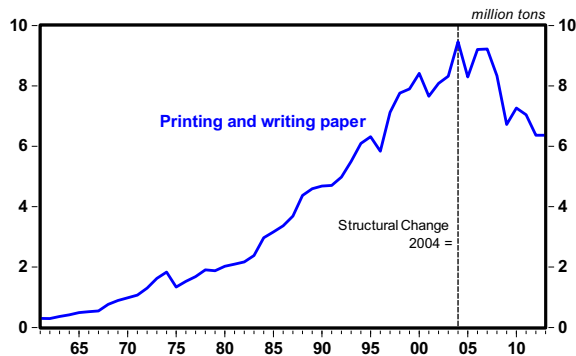


Fig. 1. Printing and writing paper production in Finland in 1961–2013. Source (data): FAOSTAT. (2014).

Download English Version:

<https://daneshyari.com/en/article/382435>

Download Persian Version:

<https://daneshyari.com/article/382435>

[Daneshyari.com](https://daneshyari.com)