Journal of Economics and Business 85 (2016) 1–12

Contents lists available at ScienceDirect

Journal of Economics and Business

Market concentration and nonlinear pricing in European banking

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ARTICLE INFO

Article history:
Received 26 January 2015
Received in revised form 18 November 2015
Accepted 9 February 2016
Available online 23 February 2016

JEL classification:
G21
L11

Keywords:
Lending interest rates
Market concentration
Nonlinear pricing

ABSTRACT

An econometric test is proposed to show the existence of nonlinear pricing in the European market for loans. The test incorporates a measure of industry concentration to examine the impact of market structure on the use of nonlinear pricing tactics by banks. Econometric results using a panel dataset consisting of seven European countries suggest that nonlinear pricing is associated with increasing monopoly power in European banking.

1. Introduction

Price discrimination, the practice of setting different prices for the same product or service, is an important area of research in the industrial organization literature and a pricing tactic that is extensively used by companies. This practice can be implemented based on observable consumer characteristics or through the self-selection of consumers who choose different versions of the same product. Price discrimination enables firms with monopoly power to increase their profits by extracting additional consumer surplus. This extraction is achieved by servicing more consumers based on their willingness to pay for a product or service.

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http://dx.doi.org/10.1016/j.jeconbus.2016.02.003
0148-6195/

Numerous empirical studies have investigated the existence of various forms of price discrimination in banking. However, the existence and causes of nonlinear pricing (a form of second-degree price discrimination) in credit markets have not been previously explored in the literature. This study uses data on the European market for loans to examine two hypotheses concerning the interest rate differences between large and small loans:

(i) The difference (spread) between interest rates on small loans ("Up to or equal to €1 million") and interest rates on large loans ("Over €1 million") tends to be positive, in line with nonlinear pricing schedules.
(ii) Increasing market concentration (monopoly power) tends to be associated with higher interest rate spreads.

Price discrimination can influence profits, consumer welfare, tax revenues and economic efficiency (see Verboven, 2008; Courty & Pagliero, 2012). Nonlinear pricing in particular is a form of price discrimination that can be associated with positive welfare effects (Pepall, Richards, & Norman, 2008). In addition, the examination of the market concentration–nonlinear pricing relationship in the market for loans can provide valuable information for explaining the level of interest rates in Europe. It is therefore of interest to examine whether nonlinear pricing tends to be associated with higher levels of market concentration.

The use of nonlinear pricing tactics by banks is an important consideration for markets dominated by a few large banking organizations and characterized by distribution limitations between banks and consumers. In consolidated markets, with limited competition from smaller banks, such distribution issues might arise in the form of reduced lending to small businesses, or difficulties in financing small scale projects. When such limitations exist, total welfare can decline with nonlinear pricing.

The econometric test proposed in this study is based on a panel dataset consisting of seven European countries and ten annual time periods. The differences in lending interest rates, with and without nonlinear pricing, are modelled as a function of market concentration and other country- and market-specific characteristics that likely influence interest rates in Europe. The results, based on a fixed-effects model specification, suggest that nonlinear pricing in the European market for loans tends to be associated with increasing market concentration.

The rest of the article is organized as follows: Section 2 reviews the relevant literature, and Section 3 presents the dataset that will be used in the econometric analysis. Section 4 presents the econometric model and the empirical results of the study, and Section 5 concludes.

2. Nonlinear pricing

2.1. Theory

There are three main types of price discrimination. First-degree price discrimination is based on setting different prices for each consumer using knowledge of their individual characteristics. It is rarely encountered in practice since it assumes perfect information about consumers' preferences. With second-degree price discrimination, the price per unit charged for a product or service depends on the number of units purchased. It is a frequently employed pricing tactic by utilities associated with water and electricity supply. Third-degree price discrimination is another frequently used pricing tactic. It uses market segmentation based on observable consumer characteristics in order to set different prices per segment (e.g. providing students with discounts).

Nonlinear pricing is the most common form of second-degree price discrimination and describes any pricing schedule in which the prices paid by the consumers for a product or service are not proportional to the quantities they purchase. Most of the theoretical research on nonlinear pricing (as in, for example, Schmalensee, 1981a; Armstrong & Vickers, 2001) has concentrated on two-part tariffs that consist of a fixed fee, which must be paid regardless of the consumed quantity, and a variable fee, which is proportional to the consumed quantity.

Two conditions are necessary for the exercise of price discrimination: (i) the existence of market power and (ii) the existence of different market segments (sub-markets), each with a different price