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Franchise fee, competition and economic growth ☆

Vey Wang, Chung-Hui Lai *

Department of Economics, Feng Chia University, No. 100 Wenhwa Rd., Seatwen, Taichung 40724, Taiwan

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ABSTRACT

This paper introduces the different kinds of franchise contract bargaining into a macroeconomic model and accordingly researches the relationship between competition and economic growth. In Nash bargaining model/vertical integration we find an inverted-U shaped or a monotonically increasing relationship between the competitive degree of the intermediate goods market and economic growth. In bargaining of the right to manage model/vertical non-integration our result shows an inverted-U shaped or a monotonically decreasing relationship between the competitive degree of the intermediate goods market and economic growth. In addition, there is an overall negative relationship between the competitive degree of the final goods market and economic growth. Especially, our interesting findings that the pricing rule for intermediate goods firm depends not only on market power but also bargaining power are more general. Therefore, we can further explain the firms' vertical control strategy.

1. Introduction

Price decision plays an important role in the monopolistic competition macro model, allowing this model to describe many markets more accurately than in perfect competition model. The conduct of the firm involved in the price decision also influences the degree of competition in the macroeconomy. In this paper we focus on how the conduct of the firm affects the relationship between competition and economic growth.

The relationship between competition and economic growth, or performance of economy, results from the conduct of the firm. Since 1980, some literature on macroeconomy has taken market structure into account. For example, Hart (1982), Blanchard and Kiyotaki (1987), Dixon (1987), Mankiw (1988), and Startz (1989), among others, have tried to explore the implications of imperfect competition for the macroeconomy based on a general equilibrium macroeconomic model. Later Romer (1990), Grossman and Helpman (1991), and Aghion and Howitt (1992) scientifically represented that monopoly rents induce entrepreneurs to innovate and thus promote dynamic efficiency, which was stated by Schumpeter (1942). Both fields' findings offer greater insight to the role of competition (market structure) in the macro model. However, most of the above literature in general equilibrium macroeconomic model or in R&D endogenous growth model generally did not include the vertically connected imperfect competitive market in their models besides recently Wang et al. (2010) who set up a model of the successively imperfect competition market structure and illustrate double marginalization phenomenon. This paper follows Wang et al. (2010) to set up a successively imperfect competition market structure in R&D endogenous growth model and used it to investigate the relationship between competition and economic growth.

Caves and Murphy (1976) noted that although franchised businesses account for over 38% of all retail sales in the US and originate 12% of the gross national product, the franchise relationship has largely escaped economic analysis. Lafontaine (1992) noted the US Department of Commerce (1988) and estimated that the total nominal sales through outlets of business format franchisors grew by 442% between 1972 and 1986, and in the same period the number of outlets grew by 65%, from 189,640 to 312,810. In addition, numerous theories and empirical articles that relied on agency-theoretic arguments to analyze franchising arrangements or related areas, are supplied by Caves and Murphy (1976), Rubin (1978), Blair and Kaserman (1982), Brickley and Dark (1987), Martin (1988), Brickley, et al. (1991), Krueger (1991), Lafontaine (1992), Lafontaine and Shaw (1999), Versaevel (2002), Seaton (2003), etc.. Moreover, recent articles attached the franchise/vertical integration to the field of technology; Acemoglu et al. (2005) investigated vertical integration in the UK manufacturing sector; Hennessy (2003) explored the role of property

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* Corresponding author.
E-mail address: p9217770@gmail.com (C.-H. Lai).

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rights in franchising; Vishwasrao (2007) researched technology licensing contracts according to royalties or fees; and Wang et al. (2010) investigated the franchise fee in the R&D growth model to the field of outsourcing, and to the field of licensing/technology transfer. In this paper we introduce the different franchise fees which are set by different contracts through bargaining between the intermediate goods and the final goods firms, and to illustrate how the conduct of the firm works.

The relationship of competition and economic growth is ambiguous. Schumpeter (1942) argued that the monopolistic rent induces incentives for R&D to promote dynamic efficiency, while more competition erodes the monopolistic rent, which is harmful to technological progress and economic growth. Indeed, Romer (1990), Grossman and Helpman (1991), and Aghion and Howitt (1992) show a decreasing relationship between competition and growth. On the other hand, neoclassical economists suggest that the more competitive a market is, the more efficiently resources are allocated, resulting in more productive economic growth in the long run. This difference in viewpoints has been the focus of some researchers who use theory and evidence to investigate the relationship between competition and growth, as with Aghion et al. (2001), Aghion and Griffith (2005), Aghion et al. (2005), Aghion, et al. (2006), Bucci (2005), and Bucci and Parello (2009). Bianco (2006) illustrates that there is an inverted-U shaped relationship between competition and economic growth. Boone (2001) showed there exists a non-monotone relation between intensity of competition and the value of innovation. Furthermore, Nickell (1996), and Griffith (2001) found a positive relationship between competition and economic growth. On the contrary, Bianco (2007) found a negative relationship. ten Raa and Mohnen (2008) found that performance is positively associated with rents on capital but not with rents on labor. Based on above mention of literature, Schumpeter and neoclassical economists may both be right, but the mechanisms differ.

Based on the above, this study reviews the relationship between competition and economic growth through the conduct of the firm, which is a central issue in industrial organization. We construct a macro model with franchise contracts bargaining (fixed fee and royalty rate) between the intermediate goods and the final goods firms within the market structure of successively monopolistic competition. In addition, we consider the bargaining strategies through different mechanisms, such as Nash efficient bargaining and the right to manage model, to illustrate two types of conducts of the firm: vertical integration and vertical non-integration. Under this scheme we will discuss economic performance and particularly the relationship between competition and growth.

Since we investigate two different mechanisms to present conducts of the firm, Nash efficient bargaining and the right to manage model, we separate the study into two different scenarios. In Scenario 1 (Nash efficient bargaining), in the first stage, the final goods firms and the intermediate goods firms bargain over the franchise contract that includes the fixed fee and the price of the intermediate goods. In other words, the final goods firms and the intermediate goods firms will vertically integrate to eliminate double marginalization through the franchise contract (Wang et al., 2010). In the second stage, the final goods firms choose the price of the final goods and labor employed to maximize their profits. In the third stage, the consumers determine the expenditure plan to maximize their utility. In Scenario 2 (right to manage model), in the first stage, the final goods firms and the intermediate goods firms bargain over the franchise contract that only includes the royalty rate. In the second stage, the intermediate goods firms determinate the price of intermediate goods as traditional R&D growth models do. In the third stage, the final goods firms determine the price of the final goods and labor employed to maximize their profits. In the fourth stage, the consumers determine the expenditure plan to maximize their utility. We proceed by analyzing the model in reverse.

2. The model

The model is an extension of the endogenous growth model with the increasing variety model of Grossman and Helpman (1991, chapter 3) and the bargaining structure of Wang et al. (2010) in successively imperfect competition market. We consider a monopolistic competitive final goods market and two types of contract bargaining. There are three sectors in this model, the final goods sector, the intermediate goods sector, and the R&D sector. In this model, R&D investment creates new types of intermediate goods for final goods production. The price of intermediate goods in Nash bargaining structure is determined by the firms of intermediate goods and the final goods through negotiation of franchise contract, but the right to manage the structure is determined by the intermediate goods firms as traditional R&D growth models do. The price of final goods and labor employed are determined by the final goods firms. The household chooses consumption/investment plans to maximize the utility.

2.1. Households

The individuals supply labor service, L that is supplied inelastically, and consumption loans in competitive labor and imperfectly competitive product markets. The representative household's preferences are defined over an infinite horizon

$$V = \int_0^{\infty} e^{-\rho t} U[C(t)]dt, \tag{1}$$

where

$$U(C) = \ln C \tag{2}$$

$$C \equiv m\left(m^{-1}\int_{j=0}^{m} c_j^{\frac{\sigma-1}{\sigma}}dj\right)^{\frac{\sigma}{\sigma-1}}, \sigma > 1. \tag{3}$$

Eqs. (1) and (2) indicate that utility is a unitary elasticity function and is discounted by a constant pure rate of time preference ρ.[1] C is a composite consumption good which consists of a bundle of closely-related product varieties according to Eq. (3). This type of monopolistic competition CES functional form follows Dixit and Stiglitz (1977). m is the number of different varieties, and c_j is a consumption goods of variety j. Commodities supplied by the different producers are imperfect substitutes with constant elasticity of substitution σ. $j \in [0, m]$ represents the varieties produced by different final goods firms.

The budget constraint, which describes how the household invests the new assets is equal to earn the rate of return r on assets and total labor income plus the profit the household receives from the final goods firms minus total spending on consumption goods. It is therefore given by

$$\dot{a} = ra + wL + m\Pi - E, \tag{4}$$

where

$$E = PC = \int_{j=0}^{m} p_j c_j dj. \tag{5}$$

E is the total spending on consumption goods, and P is the aggregate consumption price index. p_j is the price of consumption good j. w is the wage rate which is common to all sectors in the economy since labor is assumed to be perfectly mobile. Π is the profit of the firms of the final goods sector. a is households' asset which is the value of the stock of the blueprints, $a = p_A n$ and $\dot{a} = p_A \dot{n} + n\dot{p}_A$ where p_A is the cost or price of a new blueprint $\dot{n}$, and n indicates the

[1] To simplify our notation, the time argument will all be dropped.