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Analysing banks' intermediation and operational performance using the Hicks–Moorsteen TFP index: The case of Iran

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ABSTRACT

In order to analyse the impact of policy reforms on the performance of the banking sector in Iran we present a decomposition of the Hicks–Moorsteen Total Factor Productivity (TFP). This entails a comparison of both the intermediate and operating performances of different types of banks in the pre- and post-reform eras. Our results show that under the intermediation approach, state-owned banks (public banks) were considerably more efficient than private banks in the post-regulation period. In contrast, under the operating approach, private banks were fully technically efficient and mix efficient in both pre and post-reform eras. This paper highlights the importance of analysing performance from multiple perspectives. The findings reflect public banks' mission to maximise loans to target groups while private banks are motivated more by financial profit.

1. Introduction

In order to obtain a comprehensive assessment of the performance of any banking system, it is crucial to examine the productivity of individual banks considering both the intermediation and operating approaches. The former examines banks' loan making ability while the latter focuses on income and revenue generation. However, all previous studies of efficiency and productivity changes in the Iranian

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banking sector have analysed the results of the intermediation approach only (Hadian and Hosseini, 2004; Hakimabady et al., 2006; Hasanzadeh, 2007; Dadgar and Nemat, 2007; Arjomandi et al., 2012). The intermediation approach analyses how efficiently banks transform deposits from savers into loans of varying maturities for borrowers. Given the importance of the this role, previous studies have considered the value of loans as a measurable output and the magnitude of deposits along with labour and capital as three major inputs. Using a similar classification of input and output variables Arjomandi et al. (2012) found that the banking industry's technical efficiency deteriorated considerably soon after the regulatory changes in 2005, and the overall productivity performance also exhibited a similar outcome over the period 2007–2008. Arjomandi et al. (2012, p. 295) stated that the overall reduction of efficiency "was mainly attributable to the performance of private banks which became technically inefficient (the worst bank-group) and more scale and mix inefficient over this period, particularly in 2008". Arjomandi et al. (2012, p. 295) have also argued that "lower technical efficiency of private banks over this period can be attributed to their poor management of increasing deposits".

However, merely focusing on the intermediation services and excluding the revenue side of the banking system is likely to provide an incomplete picture of productivity changes. This is particularly relevant when we compare public banks to private banks. It is important to note that the private banks' major goal is to maximise income and profits, whereas the public banks in countries like Iran have to follow the government's regulations and provide services to specific groups. Thus, it is of paramount importance to compare and contrast the performance of the Iranian private and public banks using the results of productivity and efficiency changes from both the intermediating and operating views. On this same issue, Berger and Mester (2003, p.80), state that the use of the profit-oriented (operating) approach "may help take into account unmeasured changes in the quality of banking services by including higher revenues paid for the improved quality, and may help capture the profit maximisation goal by including both the costs and revenues". The operating approach defines banks' output as total revenue (interest and non-interest income) and considers interest and non-interest expenses as inputs.

The major contributions of this study are thus two-fold. First, by comparing and contrasting the results of the intermediation approach (Arjomandi et al., 2012) with the new results obtained from the operating approach, we will be able to provide a better assessment of both private and public banks in Iran pursuing different goals. Second, this study is the first attempt to use the Hicks–Moorsteen TFP index to compare the above two approaches in one study. Almost all previous studies have chosen to compare these approaches using the Malmquist TFP index. However, in Section 3 we show that the constant returns to scale assumption needed for the Malmquist index may be unrealistic when applied to the banking sector and that the use of the more flexible Hicks–Moorsteen index is more appropriate.

The remainder of this paper is structured as follows: Section 2 provides a short introduction to the Iranian banking industry. Section 3 includes an explanation on why we have adopted the Hicks–Moorsteen TFP index instead of the popular Malmquist TFP index. It also presents a literature review of the previous studies that have considered research on productivity growth and the efficiency of Iranian banks. Section 4 concisely discusses the methodology used in the study. Section 5 explores the data utilized in the paper. Section 6 discusses our empirical results, followed by some concluding remarks in Section 7.

2. The Iranian banking industry

Until 1979, Iran's banking system was dominated by Western banking norms and practices. However, following the Islamic Revolution in 1979, all foreign bank representative offices were closed. Consistent with Islamic banking practices, an interest-rate free banking law was ratified by Iran's parliament in 1983, which banned the charging of interest on all lending and borrowing activities. As the abolition of interest on bank deposits would make saving and term deposits unattractive, the Central Bank of Iran (CBI) also established an alternative system whereby depositors would receive a return depending on a bank's investment profitability at the end of a financial year. Instead of interest rates, the CBI introduced minimum investment returns (also referred to as "profit rates") that were applicable to term and saving deposits of varying maturities (Valadkhani, 2004).