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Journal of Banking & Finance 30 (2006) 179–198

Journal of BANKING & FINANCE

www.elsevier.com/locate/jbf

Are labor-saving technologies lowering employment in the banking industry?

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Received 2 August 2004; accepted 28 January 2005
Available online 25 March 2005

Abstract

Labor statistics show that the average labor hours per dollar of banking output fell by more than 30% between 1992 and 2002. The proliferation of labor-saving technologies was widely believed to be the major reason. While the first-round effect of a labor-saving technology with a given level of output is a reduction in required labor per unit of output, the second-round effect is a reduction in wage costs that will increase output. Analytically, a given type of labor-saving technology is more likely to have a positive effect on employment if the elasticity of substitution between capital and labor, the price elasticity of demand, and the cost-reducing impact of the new technology are sufficiently large. The main empirical findings of this study are that labor-saving technologies, and the spillovers of these technologies, are associated with higher firm-level employment. These results seem robust to a wide range of specifications and controls.

JEL classifications: G21; O31; J23

Keywords: Banking; Employment; Labor-saving technology

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0378-4266/$ - see front matter
doi:10.1016/j.jbankfin.2005.03.008

1. Introduction

Labor statistics (see Fig. 1) show that while aggregate output in the banking industry increased from $281,105 to $408,218 million, or by 45%, in real terms between 1992 and 2002, banking employment stagnated within the range of 3151–3313 million labor hours in the same period. In other words, the average labor hours per dollar of banking output fell by more than 30% within this period. There are two commonly cited explanations for the contraction of banking employment: banking consolidation caused by deregulation of interstate expansion and the emergence of labor-saving technologies.[1]

The rationale behind the first explanation is that the acquisition of a smaller bank by a bank holding company could result in the elimination of duplicate positions and branches with duplicate functions. However, results from past studies (see, for example, Rhoades, 1986, 1990, 1993; Linder and Crane, 1992; Srinivasan, 1992; Srinivasan and Wall, 1992; Berger and Humphrey, 1992) have shown no evidence for such a relationship between consolidation and cost-efficiency in the banking industry, which implies that mergers do not necessarily lead to a decrease in employment.[2] Jayarathne and Strahan (1996) even found an increase in employment after banking deregulation. As a consequence, the proliferation of labor-saving technologies is widely believed to be the major reason for the recent contraction in banking employment.

The banking industry in the 1990s, especially commercial banking, experienced pronounced shifts in the techniques by which banking services were produced and distributed as computer technologies and related information-processing technologies were developed. The production of banking services was traditionally labor-intensive until the introduction of new labor-saving technologies such as electronic funds transfer, automated teller machines (ATM), counter terminals, check truncation, and home banking. Examples that apply to routine transactions include the increasing reliance on point-of-sale debit transactions using bank cards, the increasing availability and use of banking by phone and personal computer, and the growth of in-store branches. Banks have also instituted labor-saving technologies to cut the cost of labor. One example is credit scoring, a statistically based method for evaluating loan applications and expected repayment performance, which is being applied to consumer and business loans (Valletta, 1999). Most mortgage banks now make ‘‘cookie cutter’’ loans that are based on preset formulae and bundled together for resale to financial markets. Recent studies indicate that this approach is generally better at reducing bad loans than loan officers (Gruenstein, 1997). These technological changes

[1] The banking deregulation includes the Garn-St. Germain Depository Institution Act (DIA) of 1982, the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989 that allows financial institutions to be acquired by out-of-state institutions, and the Riegle–Neal Interstate Banking and Branching Efficiency Act of 1994 that allows the consolidation of management and back-office operations into regional money centers.

[2] Some studies, such as Cornett and Tehranian (1992), and Spindt and Tarhan (1992), did find benefits on the revenue or output side from a merger (see the survey by Berger et al., 1993).