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Sustained impacts of *Kaizen* training

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ABSTRACT

We conducted a randomized controlled trial of short-term management training for small manufacturers in two study sites in Vietnam and collected follow-up data repeatedly for two years to assess longer-term impacts than the existing studies of management training. Our training programs introduced participants to *Kaizen*, a common-sense approach to production management. In both sites, many participants started to recognize the importance of learning about management and improved their management skills. The impacts on management skills were statistically significant two years after the programs. Our results suggest that the training program increased participants' value added in one of the two study sites, likely because they learned how to eliminate wastes in production.

1. Introduction

Managerial capital has increasingly been recognized by economists as a factor associated closely with enterprise productivity, growth, and longevity (e.g., Bloom and Van Reenen, 2007, 2010; Bruhn et al., 2010; Syverson, 2011). The pioneering studies that conducted randomized controlled trials of management training have found that many small enterprises in developing countries are unaware of standard management practices common among their counterparts in developed countries, but that they adopt such practices after participating in a short-term training program (e.g., Berge et al., 2012; Bjorvatn and Tungodden, 2010; Bruhn and Zia, 2013; Drexler et al., 2014; Field et al., 2010; Karlan and Valdivia, 2011; Mano et al., 2012). Bloom et al. (2013a) find that a longer-term, on-site coaching program improved not only management practices but also business performance of medium-sized textile plants in India.

In their survey of the earlier studies of short-term management training for small enterprises in developing countries, McKenzie and Woodruff (2014) argue that this line of research has yet to provide useful information for policy makers. Indeed, the existing studies do not provide strong evidence that management training improves business performance in terms of such accounting-based indicators as value added. While this could be attributed to noisy data, small sample sizes, and inadequately designed training programs[1], it is possible that the standard management practices in developed countries

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[1] For example, Bruhn et al. (2010) find that the estimated effects of their training intervention on productivity were "economically large but are only significant at the ten percent level." The authors ascribe these results to their noisy data and small sample size. Except for Berge et al. (2012) and Drexler et al. (2014), few studies examine the relative effectiveness of different training program designs, which may depend on trainees' types or needs.

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are not useful for small enterprises in developing countries and, for that reason, have seldom been adopted or known by them. Moreover, these studies, except for Berge et al. (2014) and Karlan and Valdivia (2011), evaluate training impacts only in several months or a year after training interventions and cannot determine how long the training impacts last.

This paper attempts to address some of these issues by providing two training programs in two study sites and by conducting a baseline survey and three follow-up surveys for three years. We measured management practices, business performance, and willingness to pay for training participation, even though the training was provided for free. After a classroom training program, we conducted the first follow-up survey, which was followed by the provision of an on-site training program in which instructors visited trainees' enterprises two or three times. The second and third follow-up surveys were conducted soon after the on-site training and two years later, respectively, which allows us to estimate relatively long-term training impacts. The experiment was conducted with small and medium enterprises (SMEs) in two industrial clusters near Hanoi, Vietnam, one producing rolled steel construction materials and the other producing knitwear garments. SMEs in each cluster are relatively homogeneous as they share equal access to the same technology, the same product and intermediate input markets, and the same labor market. The short-term impacts of the same training program in one of the two clusters are evaluated by Suzuki et al. (2014), but their study was completed before the third follow-up survey was conducted. The present study is the first to estimate longer-term impacts by using third follow-up survey and also the first to compare the training impacts between the two clusters.

Another feature of our training intervention is that it provided introductory courses to the *Kaizen* approach to production management, which was developed in Japan based on the US-born industrial engineering and quality management ideas but now is widely accepted across the world as a standard approach (Imai, 2012). This approach encourages workers to spot inefficiency problems, such as uneven workflow, waste motion, inefficient workplace layout, and other inefficient practices and arrangements and to find solutions to the problems. While *Kaizen* is common among large firms in Vietnam, it was not known by SMEs in our study sites. Before the training programs, only a few SMEs were willing to pay a small amount of money for participation in our training programs, and the actual take-up rate for the classroom training was low.

Three major findings stand out. First, our training programs, despite short sessions, had favorable and persistent effects on the production management of the trained enterprises which lasted for at least two years in both sites. This finding allays the concern about the sustainability of improved management practices. Second, while the impacts of the training on business performance are not always significant, our study suggests which part of the training program was useful to improve business performance. The useful part was the concrete steps to reduce dead stock taught in the training sessions even though other parts of the training might also contribute to performance improvement. Third, willingness to pay, which was very low initially, increased significantly among training participants, suggesting that not a few participants found the training programs useful. As one might wonder how reliable our measures of management skills and willingness to pay are, the paper presents suggestive evidence that these measures reflect to some extent the true management skills and demand for training. Overall, the findings suggest that small enterprises seldom receive management training simply because they do not know the value of learning about management, but that training participation improves their perception as well as management skills. The training participation also has the potential to improve business performance if the level and intensity of training are appropriate.

The remainder of this paper is organized as follows. Section 2 describes the experimental design and Section 3 checks the balance and discusses the attrition. Section 4 presents the results of impact evaluation. Section 5 contains the summary of the findings and implications for future studies.

2. Experimental design

2.1. Study sites and sample enterprises

There are more than two thousand village industrial clusters throughout Vietnam which have spontaneously developed and produced traditional craft items, and some of them now produce modernized products as well as intermediate inputs for industries, according to JICA's (2004) survey of clusters in this country. The clusters have contributed to the rapid economic growth since 1986 when the economy was liberalized by *Doi Moi* (Renovation) policy (Oostendorp et al., 2009). Nam et al. (2009, 2010) selected two of these clusters for their enterprise surveys in 2007 as clusters that have successfully started the production of modern items. We chose these two clusters as our experiment sites partly because of the existing rapport, and partly because they are representative clusters of modern products in semi-urbanized areas in Vietnam in terms of the number of firms, the employment size per firm, and some other aspects[2].

The two clusters under study are located in suburbs of Hanoi about 15 km from the city center but in different directions: one cluster in Bac Ninh province has produced steel products and the other in Ha Tay province has produced knitwear and

[2] According to our interview with the lead consultant of Japan International Cooperation Agency's (JICA) project called "Artisan Craft Development Plan for Rural Industrialization in Social Republic of Vietnam," these two industrial clusters have a little greater number of customers than average because they are located relatively near the capital city, but they were neither particularly large nor advanced. The project is summarized in JICA (2004). For the details of the development process of the two industrial clusters, see Nam et al. (2009, 2010). Note that Vietnam has large-scale producers of knitwear and steel, including state-owned enterprises and foreign ventures, as well and that they are not located in these village clusters.