

# University–Industry Linkages and Economic Development: The Case of Thailand

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**Summary.** — This article analyzes university–industry linkages (UILs) in Thailand at the national level and in four sectors (automotive, textiles–garments, agro–industry, and electronics). Public officials and firm managers recognize the importance of UILs for meeting challenges facing Thai producers. But with interesting exceptions, Thai UILs are frail. This is due to protection and low levels of innovation resulting in few private sector efforts to link up with universities; rigid structures and weak incentives in the Thai universities discouraging ties with business; and generally fragmented Thai bureaucracy. Underlying these obstacles is inconsistent support for UILs on the part of political leaders.

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*Key words* — Thailand, university–industry linkages, industry, agriculture, political economy, Thai bureaucracy

## 1. INTRODUCTION

This paper explores university–industry linkages (UILs)—or more specifically, linkages between industry and advanced educational institutions—in Thailand. Because they are key components in the country’s national innovation system (NIS), UILs can help Thai producers to “initiate, import, modify and diffuse technology” (Freeman, 1987, p. 1). As such, their importance has grown: Thailand’s needs for technological competences have become more pressing as the country loses its cheap labor advantage and confronts new competitive pressures. This section summarizes our key findings, explores their implications for Thai development as the country confronts more competitive challenges, and introduces the rest of the paper.

### (a) Findings<sup>1</sup>

Thais in the public and private sectors show significant awareness of the importance of

UILs in meeting the technological challenges facing the productive sector. But with some interesting exceptions in particular sectors and organizations, there are few UILs in place with clear benefits to both sides. This reflects and contributes to what has been a relatively “weak and fragmented” NIS, albeit one that has gradually begun to strengthen (Patarapong & Peerapol, 2005).

A thorough explanation for the weaknesses of Thai UILs includes several reinforcing factors. To begin with, Thai industry has historically shown little interest in innovation and R&D. Also, Thai firms generally do not exhibit high levels of collective organization devoted to improving competitiveness. In part as a result, firms have traditionally not reached out to educational institutions. On the university side, the structure and incentive systems have been cumbersome and slow to respond to the needs of

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the business community. These factors are compounded by the centralization and fragmentation of the Thai bureaucracy which, despite the presence of research technology organizations acting as facilitators, has not demonstrated high-level political and bureaucratic support for and diffusion of those scattered instances where strong UILs have emerged.

Reinforcing these problems has been a development strategy based on a combination of commodity and labor-intensive, albeit sometimes high-tech, exports by foreign producers and, until recently, high levels of protection for those producing for the domestic market. FDI strategy has not included the promotion of indigenous technological capacity. These entrenched features clearly reflect broader NIS weaknesses and indifference to technological upgrading:

“...Thailand’s commitment to building these ... (knowledge) ... resources, both by government and by the private sector, lags far behind the commitments that were being made 10–20 years ago in ... (Korea, Taiwan and Singapore) ... when their economies were at levels and structures of economic development roughly similar to those in Thailand today” (Bell *et al.*, 2003, p. 1).

The political system bears significant responsibility for this state of affairs. Thai politics has been characterized by factionalism and, increasingly, dominance by vested interests with little concern for the upgrading required for global competitiveness.

#### (b) *Implications for development*

UILs have become more important in light of the development challenges facing Thailand. The Thai economy will find it difficult to sustain growth by continuing to rely on natural resources, cheap labor, good macroeconomic policy, and strong infrastructure. Although it has emerged in fairly good shape from the 1997 financial crisis, much of the country’s recent growth has come from rising export prices and public investments, not improvements in competitiveness and productivity.<sup>2</sup> This is all the more serious since, despite the prominent headlines about problems in the financial sector, the underlying cause of the 1997 crisis was the 1996 collapse of export growth in labor-intensive manufactured goods as a result of a long-term increase in real wages: After growing at a 2% annual rate from 1982 to

1990, wages rose at an annual rate of over 9% over the following four years to 1994 (Warr, 1998, p. 57). The mid-1990s thus marked the “end of the era of cheap labor.” Labor-intensive industries such as textiles were especially vulnerable as price takers in global markets facing both new competition from lower wage producers, especially China, and more stringent demands from global buyers.

The challenge of enhancing technological competence is becoming more acute. Competition from countries with lower wages and/or stronger technological skills has been intensified by trade liberalization, such as newly created FTAs and the January 2005 expiration of the Agreement on Textiles and Clothing. In addition, Thai firms must meet increasingly tougher requirements from multinational firms. Competitive pressures for quality, price, and delivery have elevated the opportunities for local concentrations of value chains within countries, such as Thailand. But the ability to take advantage of these opportunities depends in no small part on the development of knowledge-centered capabilities that in turn can be enhanced through UILs. Thailand’s record in this area is not impressive. A recent World Bank analysis reported that nearly a quarter of Thai firms were operating below full capacity due to skill shortages; that firms must pay a significant wage premium for tertiary graduates; that Thailand is currently producing fewer secondary education graduates than countries at similar development and income levels; that the quality of Thai secondary graduates is lower than those of peer countries; and that almost half of firms surveyed assessed the IT skills of their production workers as “very poor” (World Bank, 2005a, p. 38).

One response to this challenge involves focusing only on strengthening the core capacities of Thai universities. This approach was in fact attempted in the wake of a series of S&T manpower studies (in the late 1980s and early 1990s) based on assumptions that simply increasing the supply of trained personnel would both stimulate and satisfy growing demand. The efforts have not in general yielded fruit. Nor have they addressed the range of technology absorption and diffusion needs of both Thai and more technologically advanced foreign firms.

Developing UILs is also important because meeting most of these new competitive challenges exceed the capacities of even large firms. And to the extent that large Thai firms and

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