

OVERVIEW

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Introduction

Governments often expect their vocational education and training (VET) systems to perform feats that they would not expect from other systems such as general education. Governments have perceived an increased demand for training if the labor supply shows rapid growth, if employment grows quickly, or if unemployment increases significantly. They have called upon VET systems to help unemployed young people and older workers get jobs, to reduce the burden on higher education, to attract foreign investment, to ensure rapid growth of earnings and employment, to reduce the inequality of earnings between the rich and the poor, and so on. The list is disconcertingly long. These high expectations have resulted in heavy government involvement in VET, but the record has been disappointing. Both factors—exaggerated expectations and overly involved governments—are probably responsible for the disappointments that have plagued VET in many countries. In some countries they have led to the recognition that the government's role as a VET provider has been overemphasized. Somewhat slowly, some countries are also recognizing that for VET policies to be effective, even when the private sector and nongovernmental organizations participate fully in provision, the more important question to ask is what VET policies can reasonably be expected to deliver. This chapter traces the experience of countries in reforming their VET policies and summarizes the lessons learned.

Motivation

A research effort led by the World Bank that culminated in a policy paper (see Middleton, Ziderman, and Adams 1993; World Bank 1991) emphasized that the dual goals of VET policies should be to encourage private provision and financing and to improve the efficiency of publicly provided VET. The basic approach the policy paper proposed was a two-step strategy. The first step involves addressing important non-VET problems, in particular, improving access to and the quality of general, especially basic, education; creating a regulatory framework that encourages investment in physical and human capital; and instituting macroeconomic policies that foster sustained output and employment growth. The second step entails the reform of VET by assessing VET policies and evaluating the supply of VET in relation to changing labor market demands, tailoring actions to country-specific situations, and building commitment and maintaining support for the implementation of policy reform.

In operationalizing this approach, countries face a number of constraints. Middleton, Ziderman, and Adams (1993) list the most important obstacles as inadequate financing of public VET systems, incomplete information on private training supply, fragmentation of VET systems, weak information links between training providers and employers, and weak institutional capacity. While spelling out the constraints to improving the efficiency and relevance of VET systems, this and other studies have stopped short of proposing strategies to overcome these obstacles. The timing of their research effort also precluded systematic analysis of the problems of formerly communist countries, whose transition gathered momentum during the 1990s.

Scope and Sample

Based on the experiences of countries worldwide, this study examines the constraints they face in implementing VET and related policies; analyzes how some countries have successfully implemented reforms; and analyzes VET reforms in central and eastern Europe, the former Soviet Union, and other countries in transition to a market economy, such as China.

This chapter, which focuses on the obstacles to implementing change in response to changing labor markets and innovative approaches to overcoming these constraints, introduces in summary fashion the results of 19 country studies. The countries are: Hungary, Poland, the Czech Republic, Russia, Kazakhstan, Malaysia, China, the Republic of Korea, Indonesia, Chile, Mexico, Tanzania, South Africa, Zambia, Egypt, the West Bank and Gaza, and Jordan. These countries were selected to obtain a regional balance and to present a broad range of economic and labor market conditions (table 1). Moreover, these are countries in which the World Bank and the International Labour Office (ILO) have recently completed economic and sector studies. The results of two special papers—on the lessons of Australia’s comprehensive VET reforms for and the applicability of Germany’s dual system to low- and middle-income countries—are also discussed. Australia and Germany were chosen because the reforms in these countries have not been adequately analyzed, because these countries are relatively new entrants to the role of international advocacy, and because there are unresolved issues regarding the applicability of their training systems to developing countries.

Table 1. General Characteristics

<i>Country</i>	<i>Population (1995, millions)</i>	<i>Per capita income (1995, US\$)</i>	<i>GDP growth rate (1990-95, percent)</i>
Hungary	10	4,120	(1.0)
Poland	39	2,790	2.4
Czech Republic	10	3,870	(2.6)
Russia	148	2,240	(9.8)
Kazakhstan	17	1,330	(11.9)
China	1,200	620	12.8
Indonesia	193	980	7.6
Malaysia	20	3,890	8.7
Korea	45	9,700	7.2
Chile	14	4,160	7.3
Mexico	92	3,320	1.1
South Africa	41	3,160	0.6
Tanzania	30	120	3.2
Zambia	9	400	(0.2)
Jordan	4	1,510	8.2
Egypt	58	790	1.3
West Bank and Gaza	2	1,750	0.0

Note: Numbers in parentheses are negative.

Source: World Bank (1997); for West Bank and Gaza: World Bank data.

Each of the nineteen country studies examined the labor market developments that determine the demand for VET, the supply response of the VET system, the problems that arise in the process of

matching demand and supply, and the major innovations in resolving these problems. Labor market analysis was restricted to examining those labor regulations and indicators (labor supply, employment, unemployment, and wages) that are relevant to the demand for skilled and technical workers. VET supply responses were categorized into secondary and postsecondary vocational and technical education, pre-employment vocational training, and in-service or on-the-job training. The treatment of VET issues emphasizes the distinction between public and private management, financing, and provision. Innovations, defined as policies that efficiently or equitably match the supply of VET with labor market demands, are country specific, although some general lessons are drawn.

This chapter investigates both the demand-side pressures on VET systems, which can be viewed as the roots of reform, and the supply responses or the nature of reform. It also examines special issues that arise in the course VET reform and draws some general conclusions about reform. Boxes provide country-specific examples. Note that while this chapter seeks to draw general conclusions, it does so only on the basis of the experience of the countries included in the World Bank-ILO study.

Given the complexity of this subject, the experience of some other countries may qualify, or even contradict, some of the general conclusions of this chapter. Therefore, this chapter may be best viewed as an introduction to the country studies, and may be most useful for policy purposes if followed up by examining the relevant country studies (or their summaries, which are available in an accompanying folder), which illustrate the uniqueness of experience in each country. We are confident, however, that careful analysis and interpretation of the experience of our sample countries provides lessons that are applicable to most low- and middle-income countries.

Demand-Side Pressures: The Roots of Reform

The sample countries can be classified into three groups according to their labor market characteristics. The first group has high labor force growth, low employment growth, and consequently, high unemployment and underemployment rates. These are relatively low-growth developing countries in Africa and the Middle East, represented here by Tanzania, South Africa, Zambia, Egypt, the West Bank and Gaza, and Jordan. The second group has high labor force and employment growth and low unemployment rates. These are the emerging market countries of East Asia and Latin America, represented here by Malaysia, China, Korea, Indonesia, Chile, and Mexico.¹ The third group consists of those countries with low labor force growth, low employment growth, and high unemployment rates. These are countries that are in transition to a market economy, represented here by Hungary, Poland, the Czech Republic, Russia, and Kazakhstan (table 2 and figure 1).²

An examination of the main labor market indicators—especially labor force growth, employment and wage growth, and unemployment rates—reveals the demand-side pressures on VET systems to change. The studies show that there are common patterns in the manner in which countries react to these pressures, but some countries have resorted to more innovative measures.

1. The financial crisis in Indonesia, Korea, and Malaysia has dampened employment growth and led to an increase in unemployment since late 1997.

2. Countries may fit into more than one group, for example, China is both in transition and has high employment growth, and Mexico has experienced both high growth and high unemployment episodes.

Table 2. Growth in the Labor Supply, Employment, and Unemployment, Selected Years (percent)

<i>Country</i>	<i>Labor force (1980-95)</i>	<i>Employment (1986-95)</i>	<i>Unemployment (1995)</i>
Hungary	(0.5)	(3.4)	10.3
Poland	0.3	0.0	13.1
Czech Republic	0.3	0.9	3.4
Russia	0.1	(2.4)	8.3
Kazakhstan	0.9	0.3	1.0
China	1.8	2.3	2.8
Indonesia	2.8	2.3	3.5
Malaysia	2.8	3.2	2.8
Korea	2.2	3.1	2.0
Chile	2.5	2.9	4.7
Mexico	3.2	2.7	4.7
South Africa	2.6	0.0	4.5
Tanzania	3.1	2.0 ^a	4.0
Zambia	3.0	(0.1)	18.0
Jordan	5.0	2.9	16.0
Egypt	2.5	0.4	11.0
West Bank and Gaza	5.0	2.5 ^a	20.0

a. Estimate.

Note: Numbers in parentheses are negative.

Source: ILO (1996).

Pressures Caused by High Labor Force Growth

Large numbers of labor force entrants pose a problem for policymakers when public employment growth is no longer feasible and private employment growth is sluggish. Countries such as Egypt, Tanzania, and Zambia have responded to labor supply pressures by expanding formal public education and training systems and absorbing their graduates into government employment. With the reduction in government employment and the growth of the informal sector, mismatches have emerged in the demand for and supply of skills.³ This results in VET, which is largely formal, being irrelevant for an increasingly informal world of work. In Egypt's construction sector, for example, while formally trained workers constituted between 50 to 80 percent of entrants into the sector in the 1970s and 1980s, they accounted for only 5 percent of employment in the 1990s. In Tanzania, where less than 10 percent of employment is in the formal sector, graduates of public training institutions have found only informal employment since government employment began to decline in the late 1980s.

Because secondary school graduates face poor employment prospects, in countries where education systems are government run and financed, this can lead to bloated demand for higher education. Some countries have responded to this pressure by rationing places in colleges and universities. The secondary vocational track is usually the main instrument for this rationing. In Egypt, for example, only

3. In South Asia the share of the urban informal sector in nonagricultural employment is about 60 percent. In Africa the share of wage employment in the labor force declined from 12 percent in the 1980s to 9 percent in the 1990s. In Latin America, by contrast, urban formal employment grew faster than the informal sector during the 1980s and 1990s.

general secondary school graduates are eligible for admission to fully subsidized universities, and the vocational track has swelled to include almost 70 percent of secondary enrollment. Of course, this has done nothing to rectify labor market imbalances: the Egyptian VET system supplies five to seven times the required number of skilled workers. However, the unsustainable financial burden of maintaining a large public VET system has resulted in a deterioration of quality to the point where it supplies at best semiskilled workers.

The experience of other countries shows that more effective responses to these pressures involve non-VET measures. Countries that introduced cost sharing in higher education have kept enrollments down, while not expanding vocational enrollments unnecessarily. Jordan, for example, expects university students to pay about one-third of the costs in the form of fees, a level closer to that in countries such as Chile and Korea. By contrast, Egypt, Tanzania, and Zambia recover less than 5 percent of costs from college students. Obviously, the pressures to absorb a growing number of young job seekers are most effectively met by improving their employment prospects. With a rapidly growing labor force and poor employment growth, Malaysia faced a similar situation in the early 1980s. By emphasizing primary and general secondary education (only 11 percent of secondary school enrollment is in vocational education) and growth-oriented economic policies, employment growth has outstripped the growth of the labor supply in the late 1980s and 1990s.

Pressures Caused by High Employment Growth

Rapid employment growth may create problems of its own. In the export-oriented East Asian and Latin American economies, the supply of skilled workers and technicians has occasionally fallen short of demand despite increasing wages. In Malaysia, for example, during 1986-94, estimates show that only a small fraction of the rising wage gap between skilled and unskilled workers is attributable to differential demand elasticity; technical and skilled workers had smaller supply elasticities than semiskilled and unskilled workers. In Korea, unfilled vacancies for skilled workers as a share of employment grew from 2 to 7 percent between 1980 and 1991. In China, shortages of skilled workers have emerged following rapid growth over the past decade as a result of the pressures to improve competitiveness and adopt modern technologies. The demand for professionals and technically- and manually-skilled workers is growing faster than supply. This imbalance may be exacerbated because some state enterprises continue to hoard such workers. Since trade liberalization in the 1980s, Chile has become increasingly concerned about increased inequality in labor earnings between skilled and unskilled workers because of a relative scarcity of the former.

Improving the supply responses for these skill categories requires reforms in the VET system. Korea's VET system appears to have responded well to high growth in demand. While all workers experienced increases in real wages between 1975 and 1993, the ratio of wages of professionals and technicians to those of semiskilled and unskilled workers fell from 2.5 to 1.5. The expansion of private pre-employment education and training in Indonesia led to a significant narrowing of wage differentials between unskilled and skilled workers before the current crisis. Chile's success in expanding access to secondary and postsecondary vocational education may partially explain the decline in earnings inequality between 1987 and 1996.

Upgrading workers' skills is an important concern in these countries. With rising, rapidly changing, and ever more sophisticated demands for skills, enterprises are increasingly expected to supply their own training. While this avenue is largely free of the problems of mismatch between the demand for and the supply of training, governments feel pressured to intervene because of longer-term growth and equity considerations. The most important question here is whether firms should or can be coerced or encouraged to provide even more in-service training to workers. Firm-level data from Indonesia,

Malaysia (box 1), and Mexico show that firms are more likely to train workers when these firms are larger, employ an educated work force, and invest in technological change (Tan and Batra 1995).

Box 1. Determinants of Enterprise Training in Malaysia

In Malaysia's manufacturing sector, which has experienced rapid employment and productivity growth, a 1994 survey of 2,200 firms indicates that formal training is not widespread: 33 percent of firms provide no training, 50 percent rely on informal training, and only 17 percent provide formal training. The likelihood of formal training rises with firm size, but is not universal, even in large firms. Employers are more likely to train more educated workers. The survey cites the following reasons for not training: mature technology, high training costs, lack of information about training sources, and the availability of skilled workers from schools and other firms.

A scheme allowing a double deduction for investments in training has not succeeded in increasing training, and has now been reduced in scope. The main beneficiaries have been large multinationals, which would have provided training anyway, and smaller firms were often unaware of the scheme. A new levy-rebate scheme appears to be more successful in increasing training, but it is too recent to be evaluated. While the scheme is efficiently managed, smaller firms exhibit significant noncompliance.

The most common external sources for employer-sponsored training are private providers: 35 percent of firms that train used private training institutes, 25 percent used joint venture skill development centers, and 20 percent used advanced public institutes. The least popular sources are public youth training centers and vocational and technical schools.

Pressures Caused by High Open Unemployment

As a legacy of their communist past, many transitional countries were handicapped by narrow wage differentials across skill levels. The move to a market economy has resulted in increasing returns to schooling. In Hungary the rate of return to general secondary education increased 12 to 19 percent. In Poland and the Czech Republic wage differentials across skill levels have also widened, which is a welcome development in these countries, because it improves private incentives to acquire and pay for education and training.

Rising unemployment and falling real wages are the most visible and costly aspects of transition. Long-term unemployment is particularly pernicious, and governments are using active labor programs, especially retraining, to address this problem. Little reliable information about the effectiveness of these programs is available, as they have not been rigorously evaluated, even in most countries of the Organization for Economic Cooperation and Development (OECD) except the United States (see Dar and Gill 1998). In large part, the problem is a fall in labor demand in the formal sector. In Poland, for example, the number of unemployed for each vacancy increased from 13 in 1990 to 87 in 1993. However, as the skill mix required has changed, mismatches between workers and jobs do exist, and education and training reform may be effective in solving this problem. For instance, while Russian industry has shed clerical and professional staff, job growth has been mainly for manual and production work. Evaluations of retraining programs in Hungary reveal that some workers do benefit from training, and curriculum reform in schools has resulted in better worker-firm matches, but not all mismatches can be rectified through VET. In Russia, for example, most vacancies have been for manual and physically demanding jobs, but unemployment is mainly female. Training may not result in reduced unemployment of women until industry has restructured sufficiently, which may take many years.

The Czech Republic has dealt with the problem of a fall in formal sector activity during the transition to a market economy in a relatively innovative manner. A much larger component of the reduction in employment between 1990 and 1995 was countered by pushing or keeping people out of the labor force, and reducing the incentives to stay unemployed. The Czech Republic relied more on early retirement schemes and reduced levels and stricter eligibility rules for unemployment benefits. Training programs have been kept small. The number of new job seekers was kept temporarily low by increasing enrollments in and the length of vocational education programs. Poland and Russia have also expanded vocational education in schools. However, the success of this approach depends critically on the success of policies to encourage employment growth: the Czech Republic appears to be alone in both encouraging private sector job creation and increasing the incentives for job seekers to accept employment at relatively modest wage levels (box 2).

Box 2. Reform of Unemployment Benefit Legislation and Outflows to Jobs in Transitional Economies

Reform of labor laws can have immediate effects on employment and unemployment rates. The table below shows outflows from registered unemployment in four transitional countries following the tightening of eligibility and reductions in the size and duration of unemployment benefits. In the all countries this resulted in increased outflows from unemployment, and except in Poland, in increases in wage employment in registered jobs. Although some of the outflows reflect exit from the labor force, evidence indicates that many workers are going into informal unregistered employment.

<i>Country</i>	<i>Reform period</i>	<i>Outflow from unemployment</i>		<i>Filled vacancies</i>	
		<i>Before</i>	<i>After</i>	<i>Before</i>	<i>After</i>
Czech Republic	1/91-5/93	17.0	23.4	11.0	16.5
Slovak Republic	12/90-6/93	5.1	9.4	3.5	4.7
Hungary	4/91-4/92	6.2	8.0	3.4	3.8
Poland	1/92-3/93	—	4.3	2.5	2.2

— Not available.

Note: In all four countries, the date when the main changes in regulations were announced was January 1992. Outflows from unemployment and vacancies are monthly flows as a ratio of unemployed stock.

Source: Gill and Dar (1995).

The Czech Republic had the sharpest change in legislation, and experienced the most favorable changes in unemployment and employment. After February 1991 unemployed workers were ineligible for benefits and severance pay if they became redundant because of organizational change, double payments of severance pay and unemployment benefits were stopped in 1992, and the amount of income allowed while receiving unemployment benefits was reduced. Low open unemployment has allowed the Czech Republic to keep the size of public training programs, which are expensive and at best modestly effective, small.

All the transitional countries have experienced large increases in the share of private employment despite labor hoarding in public enterprises. In Poland, while total employment fell by 2.6 million between 1989 and 1995, private employment grew by 2 million. During the same period in the Czech Republic, private employment as a share of the total rose from 1 percent to 64 percent. By 1994, more than 60 percent of Russia's industrial work force was employed in privatized enterprises, and in

Kazakhstan the private sector has grown to more than one-third of employment. Even in China, the share of urban private employment has doubled since 1990 to 14 percent.

This change in the clientele of the VET system has spelt trouble for vocational schools, many of which were traditionally attached to enterprises. In Russia, faced with declining overall employment, these institutions have become less specialized. They now offer training in 10 to 15 occupations instead of 3 to 5 as in the past and have shifted from technical disciplines such as instrument making and machining to service sector-oriented training such as law and economics. In areas of high employment growth, similar institutions in China have diversified their clientele to include programs catering to the specific skill demands of private enterprises.

Supply-Side Responses: The Nature of Reform

Drawing the sectoral boundaries of VET is difficult. Within each country, VET is managed by a number of public agencies; is financed both by the government and by the private sector; and is provided by schools, training institutions, and on-the-job. While this multiplicity of financiers and providers can be beneficial, the government has traditionally dominated the sector. What many countries have, therefore, is not VET supply characterized by competition, but by fragmentation. Several ministries often manage similar training programs, leading to duplication of public provision and to the crowding out of private supply that would be forthcoming.

Because skills can be provided in a wide range of settings, and because of the multiplicity of providers, dividing VET supply into subsectors is not easy.⁴ Nevertheless, it is useful to think of it as consisting of three parts: vocational and technical education that is part of the formal schooling cycle; pre-employment vocational training, which is usually outside the schooling cycle; and in-service training for workers provided in or outside the workplace.⁵ This distinction is used throughout this chapter and in all the country studies.

Organization and Management of the VET Sector

The main government agencies involved in the management of VET are the ministries of education and labor, although other ministries usually also play an important role. In our sample countries ministries of education invariably managed vocational and technical education with the exception of Zambia (table 3). In general, multiplicity of management is not a problem for this subsector, but in a few cases—generally countries where large public enterprises managed the vocational schools that supplied them with workers—ministries of labor and industry were also involved in managing vocational and technical education. Egypt, where more than eight ministries manage their own vocational and technical schools, is the extreme case in this regard. In some countries, the nongovernmental organization (NGO)

4. One of the emerging trends in education and training is lifelong learning. Lifelong learning incorporates three inter-related topics: civics and consumer education, literacy and foundation skills, and occupational skills. A few of the countries in the sample have recently been attempting to develop a lifelong credit system for skills training that will allow individuals to accumulate skills and qualifications throughout their working lives. However, this study does not examine the issue of lifelong learning in detail.

5. An alternative way to organize this chapter may have been around the types of clients for training, including (a) programs for young people in formal schooling programs; (b) programs for young people and adults who have completed compulsory formal schooling or dropped out (preservice); and (c) programs for adults who are already in the labor force (in-service). This was not done because policymakers are more familiar with the categories chosen in the chapter. Furthermore, these alternatives have a significant degree of overlap with the categories chosen in the chapter.

sector is also becoming a significant player in the management and delivery of vocational education. In Hungary, for example, about 90 foundations deliver secondary vocational school education.

Table 3. Management of VET Systems

<i>Subsector</i>	<i>Ministry of education^a</i>	<i>Ministry of labor</i>	<i>Other agencies^b</i>
Vocational and technical education	Czech Republic, Hungary, Poland, Russia, Kazakhstan, China, Korea, Indonesia, Malaysia, Chile, Mexico, South Africa, Tanzania, Egypt, Jordan, West Bank and Gaza	Hungary, Mexico	Czech Republic, Kazakhstan, Zambia, Egypt
Pre-employment training and retraining	Indonesia, Mexico, Jordan	Czech Republic, Hungary, Poland, ^c Russia, China, Korea, Indonesia, Malaysia, Chile, Mexico, South Africa, Tanzania, Egypt, West Bank and Gaza	Hungary, ^c Kazakhstan, Malaysia, ^c Zambia, ^c Egypt
In-plant training	Czech Republic	Czech Republic, Poland, ^c Russia, Kazakhstan, Korea, Indonesia, Chile, Mexico, Tanzania, Jordan, West Bank and Gaza	Hungary, ^c Kazakhstan, China, Indonesia, Malaysia, ^c South Africa, Tanzania, Zambia, ^c Egypt

a. Includes ministries of education and of higher education.

b. Includes individual ministries, other government bodies, and multiagency organizations such as training boards.

c. Training governed by tripartite training boards of employers, individuals, and the government.

Ministries of labor usually oversee vocational training outside the formal school cycle. The exceptions are Jordan, where it is under the purview of the ministry of education, and Kazakhstan and Zambia, where the responsibility lies with other ministries. Compared with school-based vocational education, responsibility is somewhat more dispersed in the case of pre-employment training supply. An increasing recent trend is the involvement of tripartite bodies of employers, government representatives, and individuals in the management and provision of vocational training.

The responsibility for in-service training is considerably more dispersed across ministries. In more than half of the sample countries this responsibility lay with the ministry of labor, but in at least nine countries other ministries were responsible. The ministry of education rarely plays a role in managing in-service training: only in the Czech Republic is the Ministry of Education responsible for

accrediting training providers if they wish to award recognized certificates. The management of these subsystems determines how they are used. Ministries of education may use vocational education in schools to keep students out of higher education, for which they are also responsible. Ministries of labor often provide training courses to unemployed workers who are eligible for unemployment benefits. Ministries of planning or finance sometimes view in-service training as a way to increase investment and growth.

Vocational and Technical Education

Vocational education is distinguished from general education by its higher cost of delivery, especially at the secondary level, and by the options it opens or closes at both the secondary and postsecondary level. In Tanzania, for example, the unit costs of vocational education are twice those of general secondary education. To meet these higher costs, Chile's per student subsidies for secondary industrial and commercial schools are 25 to 100 percent greater than those for general education. In Egypt, secondary technical education costs two-and-a-half times more than general education at the same level. In these and many other countries, students who enter the vocational stream cannot go on to university education. In some countries such as the West Bank and Gaza, the only avenue for further study for vocational students is enrollment in community colleges or polytechnics. In other countries such as Korea, the barrier is curriculum-related: entrance examinations for universities are based more on the curriculum of general secondary schools, so vocational school students face an uphill task competing with their general secondary counterparts. This has led to parents pressuring vocational schools to make their curriculum more general.

Table 4. Size of Vocational-Technical Secondary Education Track

<i>Country</i>	<i>Secondary enrollment ratio</i>	<i>Number of students (thousands)^a</i>	<i>Vocational-technical share^a</i>
Hungary	81	135	73
Poland	84	2,206	67
Czech Republic	86	—	84
Russia	88	6,277	60
Kazakhstan	90	1,750	33
China	52	15,300	55
Indonesia	43	4,109	33
Malaysia	59	533	11
Korea	93	2,060	39
Chile	70	652	40
Mexico	58	—	12
South Africa	77	—	1
Tanzania	5	23	65
Zambia	20	—	2
Jordan	53	—	—
Egypt	76	2,788	68
West Bank and Gaza	—	53	4

— Not available.

a. For levels of secondary education at which students are streamed into general and vocational-technical programs.

Source: Enrollment ratios: World Bank (1997); other data: individual country studies in this volume.

The effectiveness of school-based vocational education programs appears to depend on the objectives set for these programs. The most common objectives are first, to keep less gifted students out of higher education and off the streets; second, to keep people temporarily out of the labor market; and third, to provide employers with skilled workers and technicians. Other objectives include providing students with general vocational skills to prepare them for lifelong learning or for postsecondary specialized training.

Experience shows that vocational education does not seem to be a cost-effective way to keep less able students out of subsidized higher education. For example, even a well-organized and powerful government has not had much success in using vocational secondary education to curb the voracious appetite of Koreans for higher education. Despite several measures to increase vocational school enrollment—secondary school entrance examinations for Korean primary school leavers are sequenced so that vocational schools are favored, these schools receive an increasing share of the budget, and parents are exhorted to send their children to vocational programs—the government has not been able to attain its target of a 50-50 distribution of secondary school students in vocational and general streams. In Egypt, attempts to maintain a heavily subsidized higher education system have resulted in an increasing number of secondary students being channeled into the vocational-technical track (see table 4). Because of budgetary pressures and because good technical education is more expensive than general education, the quality of instruction has fallen to abysmal levels. As Tanzania's secondary enrollment rate is low, the high proportion in vocational-technical streams does not pose a major budgetary problem. However, the high costs of vocational education may thwart future attempts to raise secondary enrollment ratios.

Formerly communist countries traditionally had a high proportion of secondary students (between 60 and 85 percent in many cases) in vocational-technical streams. These countries now face both severe budgetary pressures and a rapidly changing skill mix. The experience of the Czech Republic during its transition to a market economy shows that vocational education can be an cost-effective instrument for keeping people temporarily out of a labor market that is undergoing large-scale restructuring, but it also reveals that several conditions are critical for the success of this strategy. First, the government tackled non-VET measures such as macroeconomic and labor market reforms simultaneously, which encouraged rapid private employment growth; second, it made vocational programs more general, so that their graduates entered a more uncertain labor market with appropriately more general skills; third, it financed expansion of vocational-technical education not by borrowing, but by limiting public funding of universities; and finally, it made vocational programs less terminal so that they remained attractive. While in 1989 only 45 percent of Czech secondary students were eligible to apply for higher studies, by 1995 this figure had increased to 60 percent.

The experience of rapidly growing countries suggests that vocational education is most effective when used simply to meet current demand for skilled workers and technicians. Making schools responsive to changing employer demands is difficult, but in Chile, a mix of financial incentives and decentralization appears to have helped some of the agricultural and industrial schools do just that. Assisted by per student subsidies that for agriculture are twice as large as those for humanistic-scientific and for industrial schools are 50 percent higher, a private corporation for rural development has successfully responded to employers' demands. While rigorous evaluations are not available, placement rates that range between 60 and 75 percent indicate that model is quite successful. Left to their own devices, China's secondary vocational and technical schools, which were each traditionally attached to a single public enterprise, have diversified programs to better suit local industries' demands. The State Education Commission's schools and other institutions provide tailored technical programs to 50 million adults, many of whom are already employed. This has sometimes blurred the distinction between vocational education in China's schools and vocational training programs, which are shorter and more specific.

Vocational Training Programs

Vocational training differs from vocational education in that it generally falls outside the formal schooling cycle, and thus varies more, both in terms of training duration and of entry requirements. It differs from in-service training in that it is outside the workplace, and is thus generally not intended for currently employed workers, but for those outside the schooling cycle who are seeking work. The proportion of practical to theoretical instruction in vocational training programs is higher than in vocational education, but lower than in in-service training. Thus, for example, while secondary vocational education lasts two to three years in Korea, vocational training programs take from one month to three years. While the curriculum for school-based vocational education in Korea is 70 percent theoretical and 30 percent practical, the ratios are reversed in training institutes. As in many countries, Indonesia's public vocational training institutions target school dropouts, school and university graduates, and homemakers, vocational schools only admit recent primary school leavers.

Again, the success of these programs appears to depend more on their objectives than on how they are designed and delivered. The experience of our sample countries shows that the main objectives of these programs have been first, to help unemployed workers find jobs; second, to prepare school leavers to enter the labor market; and third, to upgrade the skills of employed workers.

Public training programs are usually not a cost-effective way to help the unemployed find jobs. The experience of our sample countries is similar to that of OECD countries (see Dar and Gill 1998). However, these programs have rarely been rigorously evaluated in developing countries, and their costs have been not monitored. In Eastern Europe, where scientific evaluations do exist, the findings suggest that while the impact of untargeted public training programs is low, they have been somewhat more effective for selected subgroups among the unemployed, for instance, for older, less educated, unemployed workers in remote areas (box 3). Evaluations in industrial, transitional, and developing countries suggest that if public training programs are found to be even moderately effective for job seekers who can be classified as the poorest members of society, tightly targeted programs for these groups can be justified on equity grounds. The training scholarship program of the Chilean Ministry of Labor's National Training and Employment Service has not been carefully evaluated, but appears to have helped relatively disadvantaged workers such as women and former convicts. However, whether the participants are the worst-off among those seeking employment is not clear.

Vocational training can be effective in preparing school leavers for jobs if the delivery is competitive and the economy is buoyant. The experience of Chile and Indonesia shows that when these conditions are met, effective training programs can be delivered in different ways. Through the Ministry of Labor's National Training and Employment Service program, Chile has used public subsidies to encourage relevant training for young people. The program invited bids from private and public providers to deliver training programs for narrowly specified groups in specific locations, and for full payment to the provider, required a minimum fraction of trainees to be placed in jobs on completion of training. Indonesia has chosen a different route by encouraging unsubsidized, competitive, private provision of training. While public training centers enroll fewer than 100,000 trainees, more than 1.5 million people are enrolled in private centers. Note that both these countries have had sustained output and employment growth during the last decade.

Vocational training programs appear to be most effective when aimed at helping employed workers upgrade their skills. Firms can usually choose between sending workers to training institutions for skill upgrading, relying on formal in-house programs, or simply encouraging on-the-job learning. Malaysia's enterprise survey (see box 1) shows that that of the firms that train their workers formally, more than half rely on external training providers, most commonly private training institutes and joint

venture skill development centers. Training provided in public institutes such as youth training centers and vocational schools, which focus on training for first-time job seekers, is not popular with employers. Malaysia's experience suggests that for public expenditures on training programs to yield the highest payoff, targeting the "correct" clientele may be at least as important as ensuring competition in delivery.

Box 3. Effectiveness of Retraining Programs in Eastern Europe: Efficiency and Equity Considerations

In response to rising unemployment and falling real wages, governments in the Czech Republic, Hungary, Poland, and Turkey instituted retraining programs in the early 1990s. A recently completed study carried out jointly by the governments of these four countries and the World Bank examined the effectiveness of retraining and other active labor market programs in these countries. The findings provide valuable lessons for other developing economies in designing, administering, and monitoring their training programs. The following are the main VET-related findings of this study:

- Shorter training courses are more effective than longer courses in raising employment probabilities and earnings.
- Training by private providers is more effective than training by public providers.
- Training does not benefit all groups. Retraining is a substitute for attributes that lead to higher re-employment probabilities in the absence of any intervention, for example, being younger, more educated, and from more dynamic regions. That is, the program's value added in improving labor market outcomes is greater for relatively disadvantaged job seekers.

Before the results of these evaluations were incorporated into the design of labor market programs, public training schemes in these countries were more likely to have younger, more educated job seekers from relatively dynamic regions. The results of rigorous evaluations show that targeting job seekers who are relatively disadvantaged in terms of age or education or come from relatively backward regions appears to better serve both equity and efficiency objectives.

Source: Fretwell, Benus, and O'Leary (1998)

In-Service Training Initiatives

In-service training differs from vocational education and pre-employment training by taking place in the workplace, that is, on the job; being job specific; and often being relatively informal, even in the formal sector. However, as noted earlier the distinction between vocational training and in-service training is sometimes blurred. All the sample countries had government initiatives to increase in-service training, which generally take the form of levy-grant schemes, tax credits, and training subsidies (table 5). The objectives of these initiatives are to encourage firms to pay for investments in their workers' general skills; to help school-to-work transitions, for instance, through apprenticeships; and to help workers acquire job-specific skills that are currently needed. Governments have used various forms of coercion and financial incentives, with varying degrees of success, to attain these objectives.

Few rigorous evaluations of the effectiveness of these initiatives exist. The scattered evidence suggests that mandatory requirements, levy-rebate schemes, and tax incentives have at best a mixed record in increasing in-service training. Despite simplifying the application process, Malaysia's double deduction incentive for training has had little success in encouraging training by firms that otherwise would not have trained their workers, namely, small domestic enterprises. The case of Korea, which has used all these measures at one stage or another since the late 1960s, best illustrates their effectiveness. In 1974 the government made in-plant training compulsory for firms with more than 500 employees, and the number of trainees rose. In 1976 the government expanded this to include firms with 300 to 500 employees, but gave firms the option to pay a levy instead of providing the training. The number of

trainees declined, and despite an eightfold increase in the levy between 1977 and 1985, about one-third of the covered firms opted not to provide training. Recent evaluations have indicated that the levy-rebate system has been ineffective in increasing in-service training, and the levy-rebate scheme is being phased out. Chile discontinued its levy-rebate scheme in 1980, opting to subsidize training instead through a tax credit scheme.

Table 5. Government In-Service Training Initiatives

Country	Levy-grant system		Other incentives	
	Rate ^a	Used to finance	Tax credit	Subsidy
Hungary	1.5	Employment Fund	n.a.	n.a.
Poland	2.0	Employment Fund	n.a.	Trainee wages
Czech Republic				
Russia	1.5	Employment Fund	1.5% of profits	n.a.
Kazakhstan	2.0	Employment Fund	n.a.	n.a.
China	n.a.	n.a.	n.a.	n.a.
Indonesia	n.a.	n.a.	n.a.	n.a.
Malaysia	1.0	Training Fund	Double deduction	n.a.
Korea	0.5	Public centers	n.a.	n.a.
Chile	n.a.	n.a.	1% of payroll	Trainee wages
Mexico	n.a.	n.a.	n.a.	Trainee wages
South Africa	0.5-2.0 ^b	Industry funds	n.a.	n.a.
Tanzania	2.0	Public centers	n.a.	n.a.
Zambia	n.a.	n.a.	n.a.	n.a.
Jordan	n.a.	n.a.	n.a.	Trainee wages
Egypt	n.a.	n.a.	n.a.	n.a.
West Bank & Gaza	n.a.	n.a.	n.a.	n.a.

n.a. Not applicable.

a. Percentage of payroll.

b. Taxes levied by industrial training boards are either a share of payroll costs or per employee.

Source: ILO (1996).

Extremely efficiently run levy-rebate schemes (for instance, with quick processing of claims and simple administrative procedures) may lead to increased in-service training by some firms. Malaysia's Human Resource Development Fund, a levy-rebate scheme initiated in 1992, appears to have increased the incidence of training modestly. Surveys find that about 50 percent of covered firms have increased their training since the scheme began, in contrast with about 30 percent of firms that are eligible, but have not registered. Despite being efficiently and transparently run, the scheme still faces considerable noncompliance problems and uneven take-up across sectors. South Africa is the only sample country with a levy-rebate scheme administered by industrial training boards. The evidence does not appear encouraging: compliance is low despite the decentralization of control, and the effectiveness in increasing training is doubtful.

Schemes that provide earmarked subsidies appear to have been more successful in encouraging in-service training. Chile's Ministry of Labor's National Training and Employment Service uses a tax credit scheme to encourage firms to send workers for training programs, and in Korea the number of trainees rose sharply when the government subsidized in-plant training between 1968 and 1971. However, these schemes have not been evaluated carefully. Even if found to be effective, straight subsidies pose

obvious budgetary questions. Levy-rebate schemes have the advantage that they are self-financing, but may discourage employment because the tax is levied on payrolls.

Critical Issues, Constraints, and Innovation

This section summarizes three important reform issues relating, respectively, to the organization, provision, and financing and content of VET. It is not intended as a comprehensive treatment of these aspects of VET. Instead, it focuses on aspects that are of interest worldwide, have received in-depth treatment in the case studies, and have not been satisfactorily covered in the last two sections. In particular, the section discusses the main messages gleaned from studies on Australia's reforms since 1985 and the applicability of the German dual system to low- and middle-income countries.

Reorganizing to Facilitate Continual Reform

The problems of fragmentation because of the involvement of multiple government agencies and the difficulty of obtaining timely employer and trainee inputs make it hard to ensure efficient and accurate feedback to VET suppliers and quick reforms in response to this. Sometimes the sluggish responses prompt interventions by officials in higher levels of government. Korea's Presidential Commission on Education Reform has helped to resolve contradictions between general and vocational secondary education and higher education. Malaysia's Economic Planning Unit helps to monitor whether labor market demands are being efficiently met, and what changes are required to ensure that VET supply keeps pace with other efforts to reach industrial country status by 2020. Chile's Planning Office played a crucial role in the 1980s in designing VET policies and in determining the pattern of government subsidies for general and vocational education. However, the case of Australia, which launched reforms to ensure that its VET system would be sustainable and self-adjusting as circumstances change, is perhaps the most innovative.

Despite the expansion of Australia's VET system up to the mid-1980s, it remained subject to criticism. Critics charged that the system was too inflexible to respond quickly to overcome skill shortages or to adjust to new labor market demands, and that it operated with procedures and standards that were out of date and no longer cost-effective. Australia's efforts to facilitate smooth and cost-effective VET system responses to changing labor market conditions can be classified into four sets of measures as follows:

- *Combining the relevant government agencies into one body at the federal level for more coherent policymaking and allocation of public funds.* Between 1975 and 1985 the federal government's actions had brought about distinct changes in the relationship between the ministries of Employment and Education. The government had increased the Ministry of Employment's responsibilities for developing traineeships, interacting with employers to determine the types of training required, and implementing programs for the unemployed, but VET, which fell under the purview of state education ministries, remained the country's major vehicle for the system's formal training component. The federal government became unwilling to tolerate the division and combined the ministries of Employment and Education ministries: the Department of Education, Employment, and Training. Bearing in mind that its role in education was mainly as financier rather than administrator, this enabled the federal government to take major initiatives in setting policy. Its actions eventually led to some states also to combine their education and labor ministries.
- *Ensuring employer and worker participation in policy setting at the federal and state levels.* The second major reform was the establishment of the Australian National Training Authority by the federal and state governments. The authority was established as a company, with the federal and state governments being equal shareholders, but these governments recognized that their role in managing VET reform could not supersede the role of employers and workers. So they were included, making the authority a tripartite body. The Australian National Training Authority embarked on an ambitious

plan to develop a nationwide assessment and certification system and to encourage private training providers. The task was approached on the understanding that the major responsibilities should not simply be vested in government bureaucracies. The intent was to pass control of training from the supply side to the demand side.

- *Shifting some of the financial burden of VET investments onto the beneficiaries.* The financing of VET is as big an issue in Australia as in developing countries. As in other countries, employers look critically at the costs and benefits of training. State and federal governments are increasingly interested in having a more cost-effective system. Trainees and students, however, have probably been less concerned; when the reforms began they bore few direct costs for training. By the mid-1980s the federal government, with its sole management responsibilities for higher education, was finding it difficult to sustain the decision, made a decade earlier, to abolish higher education fees. Consequently, it introduced a higher education contribution, which initially covered 20 percent of the cost of higher education. However, the federal government left it to the states to consider introducing student fees in VET, which many of them did. To relieve the burden on employers, in 1996 the government formalized the notion of a training wage, which is below union wage levels. Trainees are thus being asked to bear a greater share of the cost of training. However, recognizing that the training wage could fall below acceptable standards, the government has proposed to top up the wage.
- *Ensuring competition in provision so that the supply is cost-effective and relevant.* The Department of Education, Employment, and Training introduced competitive bidding among training providers. Training courses were put out for bids, and although the government system maintained its position as the major supplier, others, including private providers, were allowed to bid to become suppliers. The governments concluded that employers should also be allowed to use nongovernmental training providers, including for apprenticeship training, even though, in many cases, such providers did not yet exist. The key to this was to be a system of financing through which employers could buy training from any supplier rather than having funds going automatically to the government system or to other government-funded providers.

Australia's reforms contain several important lessons for developing and transitional countries, of which the following are the main ones:

- *Expansion of VET without institutional change is rarely an answer in itself.* The Australian experience shows the importance of basing reform on sound institutions, without which investments run the risk of turning bad systems into expensive bad systems. One particular problem concerns the relationship between the industrial partners, employers, and unions, and between each of them and the VET system. In this respect, a great deal depends on the broader relationship between the industrial partners and the government. Such an approach is difficult to adopt in countries that have depended on the public sector for their development. In the end, however, getting full value for the investments they make will depend on it happening.
- *Links with the labor market must be predominant.* Keeping links between the VET system and the labor market strong requires the government to examine its own internal structures and operations. Many countries have experienced tensions between achieving educational and labor market objectives. Resolving these is not easy in industrial countries, and may be even more difficult in countries with well-entrenched public sectors where interagency discussions are weak. Australia's solution was to amalgamate the players into one portfolio. With the establishment of a single national ministry encompassing employment, education, and training, competing priorities could be resolved closer to the operating level.
- *Financing of VET should reinforce, not contradict, market forces.* Allowing market forces to work does not only depend on setting up institutions that encourage industry to determine its own training needs. This can be achieved by ensuring that costs are shared, but this is not the entire answer: costs are best apportioned in a way that enables buyers to exercise judgment. Again, this implies a shift in control away from the public sector and toward employers and trainees. Industry should become the

main force behind the development of VET training standards, assessment procedures, and accreditation.

Encouraging Private Providers

The domination of VET by developing country governments since the 1950s has often resulted in private providers (private suppliers of training, NGOs, and public-private partnerships) being shut out of the market for formal training. Private sector firms that sought external training for their workers were generally steered toward public providers. With the recognition that a healthy private supply of vocational training was good both for labor market efficiency and for budgetary reasons, many governments are grappling with the problem of encouraging private provision, while at the same time “protecting” consumers from high prices and malpractice. The requirements for doing this successfully, as illustrated by some of our sample countries, appear to be as follows:

- *Clear and lenient laws.* Removing ambiguity about the setting-up of training firms results in a vigorous response, especially for postsecondary training programs. The most striking case is that of Chile, where streamlining the legal requirements for starting training firms in 1989 was accompanied by a rapid growth of unsubsidized private training (box 4). These results also show that with clear and balanced legislation, government financing may not be necessary to bolster the demand for short training programs that are expected to be followed by employment (and not further study). Legislation in Hungary that has permitted NGOs and public-private partnerships to participate in the delivery of VET at all levels has also had a positive impact. In many cases, these partnerships are formed on a tripartite basis, that is, they consist of government, employer, and union representatives. For example, all Regional Human Resource Development Training Centers in Hungary are governed by tripartite boards and obtain equal portions of funding from employers, individuals, and the government. Malaysian training centers and many postcompulsory training centers in Poland are now allowed to operate on a similar basis. NGOs are also entering the postcompulsory vocational training field, as they already have in secondary-level schooling. In Hungary about 90 foundations deliver secondary school vocational education.
- *Balanced funding formulas.* Public funding can be used to encourage private provision of longer, for instance, secondary, technical-vocational programs. In Chile only 28 percent of secondary vocational school enrollment was private in 1980. By 1993, aided by a new funding formula that did not discriminate between public and private providers, this ratio had more than doubled. In Hungary, by contrast, special funding for public training institutions has discouraged private providers.
- *Growth of relevant employment.* People often assert that supplying technical training requires large set-up costs, and that private entrepreneurs would shy away from these investments. They argue that training for commercial fields, such as in languages and secretarial skills, is cheaper to provide, and hence private providers would be more willing to supply it. They cite this as the rationale for government provision of technical training, even where it is accepted that the government’s role in provision should be curtailed or reduced. The experience of our sample countries shows that when private providers are not discouraged by stringent laws, rapid industrial growth can lead to a strong private supply of technical training. In the Czech Republic, where manufacturing employment has grown rapidly since 1993, all new technical training programs are privately provided.
- *Universal accreditation schemes are not necessary for a healthy private supply.* Little empirical support is available for the popular belief that unless private providers are tightly regulated, for instance, by requiring that all providers meet standards set by the government, they will provide low-quality training at exorbitant prices. In Indonesia, which does not have an accreditation scheme, two-thirds of secondary and postsecondary technical-vocational enrollment is in private institutes. Regulations in Chile and the Czech Republic stipulate that private providers must be accredited if they intend to apply for public subsidies, but not otherwise. In Russia accreditation is necessary only if providers wish to award certificates recognized by the government. The experience of these

countries—which span a broad economic and institutional spectrum—shows that a government-organized system of accreditation is neither necessary nor sufficient for a balanced private system of training. The experience of other countries shows that government-run accreditation systems, which are intended to inform people of quality levels, can easily degenerate into licensing regimes, which rule out the existence of nonconforming firms. This discourages the development of a vigorous private sector.

- *Unplanned public provision crowds out private supply.* In many countries, VET policy decisions are made based on a poor or incomplete picture of private supply. As a case in point, in this chapter—which relied on government sources for information—we found it difficult to compile a table on the share of the private sector in providing VET. The case of Indonesia, which is otherwise remarkable in that it has experienced rapid growth of private VET supply, best illustrates the dangers of an unplanned expansion of public training. Originally, the government was only to provide high-cost training programs, for example, for technicians and mechanical operators, but budgetary pressures brought about by erratic and declining external funding forced public centers into lower-cost areas, such as commercial programs, for which trainees were willing and able to pay. However, this area was already well catered to by fee-charging private centers. Rather than helping private suppliers, subsidized government centers ended up crowding out some private providers.

To sum up, experience shows that when VET policies are well designed, a vigorous private supply response can be forthcoming. For example, in Chile, funding mechanisms that require public providers to compete on equal terms with private firms have resulted in the latter supplying a healthy portion of commercial, industrial, and agricultural secondary education. For shorter courses that lead trainees directly to jobs, Chile’s experience shows that clear and balanced legislation may be even more important than government subsidies. However, while these conditions are necessary, they are not sufficient. For a vigorous private supply of training, the demand for the skills that these programs provide must also exhibit growth. Generally, the willingness to pay for skills that are relatively general, such as English language proficiency and computer-related and secretarial skills, arises sooner than for comparatively specific skills, for instance, those required to obtain work as a technician or machinery operator. As a result, when regulations are favorable, the private supply of commercial training emerges first. The Czech Republic’s experience shows that with the growth of demand for technical skills, brought about, for instance, by growth in the modern manufacturing sector, the private supply response for technical training can be equally vigorous. In light of these findings, two popular beliefs should be reconsidered: the belief that government provision of technical training is necessary because the private sector is “reluctant” to enter this field because of risks or costs, and the notion that universal (government) accreditation schemes are necessary to ensure that the “poor are not taken advantage of” by profit-seeking training firms.

Box 4. Private Provision of Postsecondary Education in Chile: The Importance of Transparent Legislation

Since the early 1980s, Chile has reformed the financing and regulatory mechanisms for its postsecondary education and training institutions. Before the reforms, all postsecondary education was provided by eight universities that were allocated one-third of the government education budget. Private training institutes were prohibited from offering postsecondary technical programs. A 1980 law established minimum requirements for setting up postsecondary institutions, but proposals were dealt with on a case-by-case basis until 1988. In the nine years following the reforms, the number of universities grew from 8 to 34, the number of professional institutes from 0 to 41, and the number of technical training centers from 0 to 133.

In 1989, the government clarified the requirements for establishing postsecondary institutions and began treating proposals quickly and uniformly. Within a year, the number of universities and professional institutes had doubled and the number of technical training centers had increased by 25 percent. The table shows the percentage of these that relied on public subsidies. Note that much of the expansion in supply since 1989 is in the private unsubsidized sector, which indicates that government support for these institutions through clear and balanced legislation is more important than public subsidies.

Number of Postsecondary Institutions, Selected Years 1980-90

<i>Institutions</i>	<i>1980</i>	<i>1986</i>	<i>1989</i>	<i>1990</i>
Universities	8	20	34	60
Percentage without public funds	0	15	41	66
Professional institutes	0	24	41	82
Percentage without public funds	0	70	93	97
Training centers	0	86	133	168
Percentage without public funds	0	100	100	100

Implementing the Dual VET System

The problem of strengthening the links between education and employment preoccupies policymakers in all countries. In countries that are growing rapidly, this preoccupation stems from the concern that the economy's demand for skilled workers will outstrip its supply. In countries where economic growth is slow, the concern may arise as a result of growing unemployment among young people. In both cases, this attention often turns into efforts to make curricula more vocational, to involve employers in schooling decisions, to increase pre-employment training, or to create incentives for employers to participate in apprenticeship training. These attributes are all associated with the current German approach to VET, commonly referred to as the dual system. The dual system is attractive for countries at all stages of development. In our sample countries, the Czech Republic, Egypt, Indonesia, Jordan, Korea, and Poland all have some form of this system, and other countries such as Kazakhstan, Tanzania, and Zambia are considering adopting this approach.

The system is referred to as dual, because schools and employers respectively provide vocational education and occupational training simultaneously, that is, during a single program of work and study. Theoretical aspects of training are provided in publicly-run and publicly-financed vocational secondary schools, and practical aspects in firms that provide and finance apprenticeships. Apprentices spend one or two days each week in vocational schools, and the remainder in firms. In small firms, apprentices mostly acquire skills through learning by doing, while in larger firms training is often in specialized centers. While in Germany the formal vocational education component was introduced many years after the vocational training part had been refined, this sequence is generally reversed in developing countries trying to adopt the dual system. In these countries, a public vocational education system generally exists, and governments attempt to tack on an apprenticeship program to make the system a dual one.

A pertinent question to ask is whether the following employment structures and institutions of countries that are trying to import the system are similar to that of Germany:

- *Sectoral and size distribution of firms.* Almost 90 percent of employment in Germany is in manufacturing and services, in which most apprenticeships are provided. This ratio is considerably lower in low-income countries, for instance, it is about 45 percent in Egypt and Indonesia. Even in the relatively modern manufacturing and services sector in developing countries, employment is concentrated in microenterprises and small-scale enterprises. Germany's experience with the dual system shows that extremely small firms generally do not provide apprenticeships, and when they do, often do not retain trainees when they complete their apprenticeships. In developing countries where small firms dominate even the regulated formal private sector, this would imply low participation in such a system.
- *Regulation and union coverage.* Firms in developing countries are more likely than German firms to be unregulated and to have weak union representation. Thus for the government or unions to ensure that employers conduct apprenticeships in conformity with established standards and regulations may be difficult. In the German *handwerk* sector, which most resembles manufacturing and services sectors in developing countries, many German firms use trainees as cheap, flexible labor. In most developing countries, the absence or nonenforcement of minimum wage legislation reduces the need for firms to use apprenticeship wage laws to avoid hiring untested workers at high entry wages.
- *Capacity to bear high costs.* Because of both tradition and pragmatism, firms in Germany bear the high costs of the vocational training component of the dual system, but in our sample countries firms tend to be reluctant to bear the costs of apprenticeships. Faced with reluctance on the part of private firms to finance the vocational training component of the dual system, developing country governments may be tempted to bear the entire burden, but they should weigh this decision carefully. It appears that the poorer the country, the greater the real burden of implementing a German-style dual system. While the annual unit cost of the dual system in Germany is about the same as its per capita gross national product, simulations show that this ratio is greater than two in Korea, more than three in Indonesia, and more than four in Egypt (see Box 5).

However, while the German system is not directly importable, the principles underlying it provide valuable lessons that are relevant across a broad socioeconomic spectrum, namely:

- *Participation in the dual system is voluntary.* Even some firms that are qualified to offer apprenticeships do not do so. In addition, employers are under no obligation to retain trainees upon their completion of the dual program, and less than half do. Developing country governments trying to adopt the dual system while using coercive measures, such as mandated training requirements or forcible retention of apprentices, should be informed that this is inconsistent with the German system.
- *The organization and control of vocational education and training are left to the body that pays for the instruction.* State and local governments pay for and control the relatively general skills that are acquired in school, and employers pay for and determine the job-specific training acquired in the

workplace. Developing country efforts to adopt the German dual system often violate this principle, in that governments, not employers, generally take the lead in organizing and financing vocational training.

- *Education and the dual system appear to be complements.* Germany does not use the dual system to keep high school graduates from pursuing higher education. In fact, Germany's experience shows that the education level of dual system entrants has risen significantly over time, as the pace of technological change has increased the importance of general education relative to specific skills. Poorer countries may be better served by government efforts to improve general education levels, rather than by allocating scarce resources to public vocational education programs or government-led apprenticeship schemes.

Box 5. Costs of the Dual System in Low- and Middle-Income Countries

In Germany, the government pays for and controls vocational education in schools and employers finance and manage apprenticeship training. Using a simple methodology, the annual unit costs of a dual system participant are imputed to equal US\$17,200 in Korea, US\$2,750 in Egypt, and \$2,250 in Indonesia. Thus, for example, the imputed cost of putting an Indonesian trainee through the dual system is about US\$7,000. This imputed measure is almost identical to the actual cost of a dual system pilot program in Indonesia reported in independent surveys.

Unit Cost of Dual System Components, 1991
(1991 U.S. dollars)

<i>Country</i>	<i>Actual or imputed cost</i>			<i>Ratio of total to GNP/capita</i>
	<i>Training</i>	<i>Vocational education</i>	<i>Total</i>	
Germany	17,700	3,300	21,000	0.9
Korea	14,500	2,700	17,200	2.3
Indonesia	1,900	350	2,250	3.1
Egypt	2,350	400	2,750	4.2

Source: authors' calculations.

Summary and Lessons Learned

As stated earlier, given the complexity of this subject and the large variations in the characteristics of the countries studied, the following summary may not adequately represent the experience of some of these countries. A full appreciation of VET reforms can perhaps only be obtained by reading the individual country studies. However, some general lessons can be drawn from these disparate experiences.

At the risk of oversimplifying the complex changes in the countries studied, we can summarize the ingredients of success in VET reforms as follows:

- Successful reforms make school-based vocational education more like general education in two ways: the content is made more general, and the vocational-technical track is made less of a dead-end.
- Successful reforms appear to be those that combine public financing of pre-employment training with rigorous evaluation of program impact, and ensure competition between providers in delivery.
- Successful initiatives to encourage in-service training recognize that formal training is not widespread, even in formal sector enterprises; that mandatory training targets and levy-rebate

schemes do not increase training significantly; that tax incentives work only where tax coverage is comprehensive; and that while subsidies may increase training, they will also increase expenditures.

The main messages gleaned are as follows:

- *Matching instrument to target group is as important as picking the best delivery mode.* Perhaps the most important message that emerges from the survey of vocational education, pre-employment vocational training, and in-service or on-the-job training is that while mechanisms through which VET is supplied, for example, public or private, subsidized or unsubsidized private, are important, it is critical that these programs target groups that will most benefit from them. This is because VET is more effective when used for some purposes, for instance, to meet clearly observed, current labor market demands, than for others, such as keeping less gifted students out of higher education or helping the unemployed find jobs. Also, in most cases, VET programs are more expensive than alternatives such as general education and job search assistance. In matching instruments to objectives, most developing countries are only now appreciating the importance of scientific evaluations.
- *The government's role in facilitating the provision of information about VET has been relatively neglected.* A related message emerging from the country studies is that a preoccupation with providing, regulating, or financing VET can result in governments neglecting their roles as providers of information about the availability and effectiveness of vocational programs. An expansion of this role may be one of the most effective ways for governments to foster the development of a relevant and cost-effective VET system. Better information about VET programs helps policymakers redesign their VET policies and interventions so that private providers are not crowded out of the market. Wider access to information on the availability and quality of training supply can better protect prospective trainees from unfair trade practices than government-run accreditation schemes and stringent licensing practices in countries where institutional factors circumscribe the regulatory powers of government. In general, this role has been overlooked or underemphasized. The most striking evidence of this neglect is the lack of reliable information about the effectiveness of public training programs and the availability of privately provided VET programs in most of our sample countries.
- *A vigorous private response has refuted claims of the reluctance of private provider to enter the field.* The experience of our sample countries indicates that when VET policies are designed to encourage rather than replace the private sector (either private training providers, NGOs, or public-private partnerships), a vigorous private supply response can be forthcoming. Thus, for example, public funding mechanisms that require public providers to compete on approximately equal terms with private trainers can result in the latter acquiring a healthy portion of the market for longer vocational education programs. Experience also shows that for shorter courses that lead trainees directly to jobs, clear and balanced legislation seems to be even more important than government subsidies. However, while these conditions are necessary, they are not by themselves sufficient. For a vigorous private supply of training, there must also be growth in the demand for skills that these programs help workers acquire. Generally, people's willingness to pay for skills that are relatively general, for instance, language proficiency and computer skills, arises sooner than that for occupation-specific skills, for example, as technicians or operators. As a result, with balanced regulations, the private market for commercial training emerges before that for technical programs. Where the demand for technical skills has grown because of the growth of modern manufacturing and the regulatory conditions are favorable, private supply responses for technical training have been equally vigorous. In light of these findings, the belief that government provision of technical training is necessary because the private sector is reluctant to enter this field should be reconsidered.
- *Political will, not institutional capacity, is the main obstacle to comprehensive reform.* The experience of countries worldwide, for example, Australia in the OECD, Chile in Latin America, the Czech Republic in Eastern Europe, and Korea in East Asia, shows that a strong political will to

reform is the common ingredient of successful efforts to restructure VET systems. Australia's reforms reveal that resistance to the reallocation of responsibilities and government funds in response to changing labor market conditions may best be overcome by comprehensive reforms that involve first, consolidating responsibility for policymaking and overseeing public spending on education, training, and employment under one umbrella; second, implementing institutional measures to involve employers and workers in determining VET policy; and third, reducing significantly the role of government in supplying VET by restructuring financing rules to encourage rather than crowd out private provision. This is a tall order for any country, but the most important prerequisite is the political will to reform, which is perhaps neither dependent on a country's wealth, nor on its level of institutional advancement.

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Figure 1. Classification of Sample Countries by Labor Market Characteristics

