

Germany's Dual System: Lessons for Low and Middle Income Countries

Country Study Summary

BACKGROUND

The problem of strengthening the links between education and employment preoccupies policymakers in all countries. In countries which 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 youth unemployment. In both cases, this attention often turns into efforts to vocationalize the curriculum, or involve employers in schooling decisions, or increase pre-employment training, or create incentives for employers to participate in apprenticeship training.

These attributes are all associated with the current German approach to vocational education and training, commonly referred to as the "dual system". For these reasons, the dual system is alluring for other countries, some of which have sought German assistance in transforming their vocational education and training systems to resemble that of Germany. While it is unrealistic to expect a system that has matured in a country which is now highly industrialized, has strong workers' and employers' unions and well-developed regulatory and administrative mechanisms, to be readily adaptable to countries that do not share any of these attributes, these countries can learn more general lessons from the German apprenticeship experience. This note summarizes the main features of the German system, analyzes its institutional and financial prerequisites, and provides insights into which aspects are applicable in low- and middle-income countries, and which are likely to be prohibitively costly.

ORGANIZATION AND FINANCE OF GERMANY'S DUAL SYSTEM

The system is called "dual" because vocational education and occupational training are provided simultaneously (i.e., during a single program of work/study) to participants by schools and employers respectively. Theoretical aspects of training are provided in publicly run and financed vocational secondary schools, and practical aspects in firms which provide and finance apprenticeships (see Table 1). The program generally lasts about 3 years. Apprentices spend 1 to 1.5 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.

Role of the government

A formal agreement between the federal government and the Länder (state) ministries of education lays out the procedures for co-ordinating education and training. The Federal Institute for Vocational Training (BIBB) can initiate establishment or reform of training regulations, it draws up the rules to implement changes in training laws, standards, or curricula after they have been deliberated upon by employers' associations, unions and state governments, it monitors training costs and effectiveness through periodic nationwide surveys, and finances federal government initiatives to increase vocational training. Vocational schooling is run by state ministries of education, which develop draft curricula for vocational schools. Vocational schools are financed by municipalities or district governments, which provide equipment and material costs, and the state governments which provide personnel costs. The state minister of economics plays a more important role than the minister of education in regulating in-firm vocational training.

Role of employers and labor unions

Employers pay for the direct costs of the vocational training component, which includes the wages of the apprentices. All employers belong to regional employer associations, called chambers of industry. Regulatory control of

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vocational training is decentralized among 480 regional chambers. Responsibility for the supervision of training lies with vocational training committees (VTCs) in these employers' associations. VTCs include labor union representatives and vocational education teachers. The role of these committees includes determining the suitability of firms to provide training, monitoring the quality of training provided by member firms through training counsellors, and taking punitive action if necessary. Chambers also set up examination committees - consisting of employers, employees and instructors - for each occupation, and conduct and pay for examinations.

Reform and change

The establishment or reform of training regulations can be initiated by labor unions, employer associations, or by BIBB. After successful talks, the "competent" state Minister issues an order to the BIBB to develop a "draft training regulation" for workplace training in co-operation with experts from employers' associations and unions. The state ministry develops curricula for vocational schools. Employer's associations aim largely to keep workplace training standards reasonable. Labor unions aim to ensure that wage growth reflect occupational upgrading. The only role of the federal government lies in helping forge a compromise between state governments, employers and labor unions.

Table 1. Organizational, Regulation and Financing of the Dual System

	<i>Vocational Education</i>	<i>Training</i>
Venue	School	Firm
Duration	(a) one-year full-time (b) 1-2 days/week for 3 or 3.5 years or more	(a) two-years full time (b) 3-4 days per week for 3 or 3.5 years
Curriculum	General education; Job-related theory	Occupation-specific training
Legal framework	Länder (state) school laws	Federal training laws Industry rules and regulations
Teacher	Theory teacher (university degree plus practical training) Practical teacher (secondary degree, master craftsman title or technical diploma, plus work experience)	Vocational trainers (master craftsman or equivalent)
Costs	Staff, material, and plant	Trainee compensation Staff, material, and plant
Funding	Länder and municipal tax revenues	Employers
Responsibility	Länder Ministries of Education and Culture	Employers, with federal and union monitoring

PRE-REQUISITES FOR THE GERMANY DUAL SYSTEM

It is pertinent to ask whether the institutions and employment structures of countries that are trying to import the system are similar to that of Germany.

Sectoral and size distribution of firms

Manufacturing and services, in which most apprentices are training in Germany, have almost 90 percent of employment in Germany. This ratio is considerably lower in low income countries, e.g., it is about 45 percent in Indonesia and Egypt. Even in the relatively modern manufacturing and services sector in developing countries, employment is concentrated in micro- and small-scale enterprises. The German experience with the dual system clearly shows that very small firms generally do not provide apprenticeships and, when they do, they often do not retain trainees upon completion of the program (see Table 2). In developing countries where even the regulated formal private sector is dominated by small firms, this would imply marginal participation in such a system.

Table 2. Employer participation and trainee retention, 1985
By Size of Firm (percent)

<i>Size</i>	<i>Firms with Apprentices</i>	<i>Post-training Retention Rate</i>
5-9 workers	35.0	56
10-49	59.0	64
50-99	78.0	69
100-499	91.0	73
500-1000	99.5	82
1000 +	99.6	87

Regulation and union coverage

Firms in developing countries are more likely than German firms to be unregulated, and with weak union representation. Thus, it may be difficult for the government or unions to ensure that employers conduct apprenticeships in conformity with established standards and regulations. In the German handwerk sector, which most resembles manufacturing and service sectors in developing countries, many German firms use trainees as cheap and flexible labor. In most developing countries, the absence or nonenforcement of minimum wage legislation reduces the incentive for firms to use apprenticeship wage laws to avoid hiring untried workers at high entry wages.

IMPUTED COSTS OF DUAL SYSTEM IN LOW AND MIDDLE INCOME COUNTRIES

Faced with reluctance on the part of private firms to finance the vocational training component of the dual system, governments may be tempted to bear the entire burden. To inform policymakers, we impute the costs of both parts of the dual system in representative middle and low-income countries. The steps taken to impute costs of the dual system in other countries are: first, we determine the gross unit costs of the school-based vocational education and firm-based training in Germany. Second, we calculate the ratio of these costs to the costs of public secondary and higher education. Third, using these ratios and the actual costs of, alternatively, secondary and university education in other countries, we impute the costs of dual system components in these countries.

Using this simple methodology, the annual unit costs of a dual system participant are computed to equal \$17,200 in Korea, \$2,300 in Indonesia, and \$2,800 in Egypt (see Table 3). Thus, for example, the imputed cost of putting an Indonesian trainee through the dual system is about \$7,000. This imputed measure is almost identical to the actual cost of a dual system pilot program in Indonesia ("System Ganda") reported in independent surveys. 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 GNP, this ratio is greater than 2 in Korea, more than 3 in Indonesia, and over 4 in Egypt.

Table 3. Unit Cost of Dual System Components
(1990-1991 Annual Figures, in US Dollars)

Country	Actual or Imputed Costs			Ratio of Total to GNP/capita
	Training	Voc Ed	Total	
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

* indicates that estimates are imputed.

LESSONS FOR OTHER COUNTRIES

While differences in sectoral and size distribution of firms and high costs may pose unsurmountable obstacles to poorer countries in importing the dual system, developing countries should not overlook the more fundamental attributes of the German dual system that are relevant across a broad socioeconomic spectrum. These offer the following lessons:

In Germany, the organization and control of vocational education and training are left to the body that pays for the instruction.

The state and local governments pay for and control relatively general skills that are acquired in school, and employers pay for and determine job-specific training acquired in the workplace. Developing country efforts to adopt

the German dual system often violate this principle: governments, not employers, generally take the lead in organizing and financing vocational training.

In Germany, the formal vocational education component was introduced many years after the vocational training part had been formalized.

This sequence is generally reversed in developing countries trying to adopt the dual system: a public vocational education system generally exists, and governments attempt to tack on an apprenticeship program to make the system dual.

In Germany, participation in the dual system is voluntary.

Even some firms that are "qualified" to offer apprenticeships do not do so. Employers are under no obligation to retain trainees upon completion of the dual program: in fact fewer than half do. Developing country governments trying to adopt the dual system while using coercive measures such as mandated minimum training requirements or levies should be aware that this is inconsistent with the German system.

In Germany, the dual system is not used to keep high school graduates from pursuing higher education.

Because it is not cheap in any setting, it is likely that the dual system will be an expensive way to divert students in developing countries from going on for higher studies. While a large share of dual system completers enter the labor force, a significant fraction enrolls in higher education either immediately or after working a few years.

Education and dual system training may be complements.

Finally, 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. Rapidly growing countries such as Indonesia and China may be better served by government efforts to improve general education levels, rather than allocating scarce resources to public vocational education programs or government-led apprenticeship schemes.

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Based on "Germany's Dual System: Lessons for Low and Middle Income Countries", by Indermit Gill and Amit Dar (1996), prepared for the Bank-ILO Study on "Constraints and Innovations in Reform of VET." For copies of the paper or others in the series contact Indermit Gill via email at igill@worldbank.org or by telephone at 202-473-3449. ❖