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Vocational Education in the New EU Member States

Enhancing Labor Market Outcomes and Fiscal Efficiency

Mary Canning
Martin Godfrey
Dorota Holzer-Zelazewska

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The report is part of a series of studies on current issues in public finance reform in the Central European and Baltic countries (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia—the "EU8") which joined the European Union on May 1, 2004. These studies have been undertaken since 2005 and coordinated and edited by Thomas Laursen, Lead Economist for Central Europe and the Baltic States in the World Bank. Marta Michalska provided excellent administrative and logistical support throughout the process of preparing these studies.

Abbreviations

BMBF	German Federal Ministry of Education and Research
CEDEFOP	European Center for Development of Vocational Training
CERI	Centre for Educational Research and Innovation
CNC	Computer Numerically Controlled
CVT	Continuous Vocational Training
ELS	Early School Leavers
EU	European Union
EU8	New Members of European Union
EU-15	Old Members of European Union
EUROSTAT	Statistical Office of the European Commission
GE	General Education
GDP	Gross Domestic Product
HR	Human Resources
ICT	Information and Communications Technologies
ISCED	International Standard Classification of Education
OECD	Organization for Economic Co-operation and Development
PHARE	Polish Hungarian Aid Restructuring Economies Program
PISA	Program for International Student Assessment
TransMONEE	UNICEF database of socio-economic indicators for Central and Eastern Europe and the Commonwealth of Independent States
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UNICEF	The United Nations Children's Fund
VE	Vocational Education
VET	Vocational Education and Training

Executive Summary

This report explores the fiscal aspects of vocational education reform in the context of secondary education as a whole and considers the implications of any changes in the VE system for post-secondary and other modes of skill development.

Vocational Education (VE) is often ignored during discussions of secondary education reform even though it accounts for between 25 percent and 79 percent of upper secondary enrollment in the former centrally planned countries of the EU (EU8). Based on information, data and feedback from most EU8 countries, the report develops a set of propositions about VE reform, not with a view to prescribing a detailed "one-size-fits-all" strategy but rather to deriving some principles that continued reform of VE could take into account, to the benefit of fiscal efficiency.

The report begins by describing the inherited system of vocational education in the former socialist countries of Central and Eastern Europe which was based on the assumption that everyone had to be trained for a specific occupation before starting work and that it was the function of vocational schools to provide such training. Although individual countries varied in the extent to which they adopted this approach, in all EU8 countries, narrowly specialized vocational education tended to be provided early and relied heavily on on-site practical experience in state enterprises.

From early in the transition, falling investments, poorly trained teachers and the decline of the enterprises for which students were being trained made the survival of the old VE system problematic. Some efforts to reorient and diversify VE systems in several EU8 countries to respond to changing social and economic needs and to make VE more attractive to learners by increasing its focus on quality assurance and on employability are discussed in the report. However, the inherited model proved quite resistant to change even though, following the initial transition period, efficiency and quality failures were compounded by the stigma, in the case of lower-level VE, of taking "failures" from relatively disadvantaged.

An increase in expenditure efficiency, incentives for more private provision in response to specific labor market signals and greater involvement of employers in financing and provision of VE could contribute to fiscal efficiency. A system that provides good quality and labor market relevant VE would also improve the use of EU matching grants and could increase their availability. Better VE would contribute to labor mobility from lagging to more economically active regions. Improvement in the quality of schooling at this level would contribute to competitiveness in skill-intensive sectors, to the benefit of growth rates and government revenue.

The scope for increasing expenditure efficiency will vary from country to country, with the varying size of VE systems. Data limitations and the fact that the EU8 countries are not a homogenous group, have led to difficulties in assembling information on vocational education that is fully comparable between countries. Although statistics on expenditure on VE are scarce, because many countries do not separate VE from other types of education in their budget statistics, there is evidence that public expenditure on VE has been tending to fall in some countries. Yet even when VE is under-equipped, the unit cost of VE tends to be higher than that of GE in all EU countries. One reason for these costs is that student/teacher ratios are higher in vocational schools which have a larger number of non-teaching staff

than do general schools. Other reasons for the higher costs of vocational schools lie in their larger premises including underutilized workshops, their provision, in some cases, of dormitories and sometimes the granting of stipends to students (since those from disadvantaged families are over-represented).

The substantial costs of improving the quality and relevance of the existing VE system by purchasing new equipment, and providing better salaries and training for VE teachers would further increase the difference between the unit costs of vocational and general education. It is not obvious that the benefits of an improved system would be worth this investment by delivering better labor market outcomes. Data on outcomes vary from country to country but suggest while there is not much difference between those of VE and GE leavers in Poland and Slovakia, while in Lithuania VE leavers in the 25–34 age group do worse than GE leavers in both unemployment rates and average earnings. High rates of unemployment among young VE leavers raise further doubts about attempting to impart job-specific skills in schools: such skills deteriorate rapidly without use. In Poland, a higher proportion of those with vocational than of those with general secondary education is below the poverty line.

The report explores the scope for improvements in fiscal efficiency via a number of propositions about VE in the EU8 countries today.

It would not be possible or advisable to fund adequately a traditional VE system which would provide ready-to-work recruits with narrowly specialized skills for the economy's enterprises. Although it already accounts for a large share of public educational expenditure and of GDP, the reality of vocational education in most EU8 countries today is that it would need far more funding to achieve its traditional objective (of providing ready-to-work recruits with narrowly specialized skills for the economy's enterprises). This is reflected in its out-of-date equipment oriented to out-of-date specializations and ageing, poorly paid teachers.

One way to reduce costs would be to locate practical training entirely in-plant but this is increasingly difficult. Location of practical training in plants rather than in schools or practical training centers is desirable in order not only to reduce costs to government but also to ensure that training is related to today's rather than yesterday's technology. Even practical training centers rapidly become "museums of technology." This implies a need to develop modern apprenticeship systems with the support of companies.

EU8 employers' traditional expectations of VE are unreasonable. The expectation of some EU8 employers that the public vocational school system, almost entirely funded by taxpayers should deliver to them ready-to-work, specifically-skilled recruits is not reasonable. What a school system can be expected to deliver to employers (and what formal employers in the "new" sectors increasingly want) is flexible and trainable recruits with broad rather than narrow skills, which will not become obsolete with changes in technology and industrial structure, and the "ability to work independently, to evaluate critically, to solve conflicts, to work in teams, and to be socially and morally competent"

Traditional VE was the traditional answer to the question, "What to do with those who have performed less well in basic education?" but this answer no longer convinces. Using vocational education as a repository for those who performed less well in basic education was a common solution throughout Europe and elsewhere. That assumption has been increasingly questioned. Evidence from OECD's PISA studies shows greater overall variation in student performance and performance differences between schools in countries with rigid selection practices at an early age between types of program and school. Effects of social clustering are larger in school systems with differentiated types of schools than in systems in which the curriculum does not vary significantly between schools. Moreover, there is evidence

that the inequities that begin in initial and lower secondary education are perpetuated in post school education and training where those who have not completed upper secondary education and those with low-skilled jobs continue to be accorded the fewest opportunities for life long learning.

Parents and students are showing an increasing preference for GE over VE. Over the whole period since 1990 the share of VE in total secondary enrollment has fallen significantly in all EU8 countries except the Czech Republic, and the fall has been particularly steep in Lithuania, Latvia and Poland, in apparent contrast to trends in the EU-15. At the same time, enrollment rates in higher education have soared. The increasing preference for GE over VE is only partly a response to the immediate labor-market outcomes of the two types of secondary education, explored in section C. Preferences can also most likely be attributed to the higher rewards available to higher education over the longer term. With enrollment rates in higher education above 50 percent in most EU8 countries, these preferences have a powerful backwash effect on aspirations further down the education system—to the detriment of VE enrollment rates.

From these propositions, a number of principles or policy options are developed that could inform a program of VE reform to the benefit of fiscal efficiency:

- *Do not try to re-create the old model.* It would not make sense to use public money to try to restore the equipment and teaching staff of vocational schools to the standard needed for them to achieve their traditional objective (of providing ready-to-work recruits with specialized skills for the economy's enterprises) in a volatile high-technology world. Even if this involved the creation of Practical Training Centers serving a number of schools in a locality, it would be prohibitively expensive.
- *Close or merge non-viable schools.* A formula funding system, under which the amount of public money allocated to a school depends primarily on the number of students, would draw attention to schools which are not viable, particularly if it is combined with school autonomy. Whatever the funding mechanism and governance model, non-viable vocational schools should be closed or merged.
- *Use need as the criterion for subsidies.* Scholarships or stipends, at present awarded to pupils in vocational schools in many EU8 countries, should be awarded (if at all) on the criterion of need rather than the type of school attended. Additionally or alternatively, in a formula funding system, the formula could give higher allocations to schools for disadvantaged students as an incentive for them to recruit them actively, retain and pay particular attention to them.
- *Make all practical training in-plant.* Schools should only be involved in apprenticeship programs if all the practical training is in-plant, and preferably funded at least partly by employers. If employers cannot be persuaded to participate in this way, the apprenticeship model cannot work and would have to be dropped.
- *Explore alternative sources of funding, but cautiously.* VE schools in the EU8 countries supplement the funds obtained from the state by raising their own resources—from sales of their products or services, training courses for adults or renting out premises. Care has to be taken to ensure that fund-raising does not clash with the wider purpose of a school.
- *Encourage the growth of private training institutions.* Provision of just-in-time vocational training by private institutions can be expected to help to fill the skills gap. For example, privately owned training institutions are responding to new demands

for specific skills in Western Europe and could do the same in response to increases in domestic demand.

- *Reform higher education financing.* The backwash effect of higher education expansion on parents' and students' preferences for tracks that ease upward progression in the education system could be reduced by reform of higher education financing: a combination of tuition fees, loans and need-based grants would reduce both the private rate of return on higher education and the attractions of tracks that lead to it.
- *Move increasingly towards post-secondary VET.* If education is regarded as a public good, the logical place for specialist and relevant vocational training is after the completion of a high-quality secondary education. This is effectively already the medium-term aim of policy in several EU8 countries or regions within countries. The aim within upper secondary education would then be to ensure that it imparts key competences and new skills to as many of its graduates as possible—to the benefit of learning and labor market outcomes and international competitiveness.
- *Integrate rather than separate, and take equity seriously.* The question of "what to do with those who have performed less well in basic education?" should be addressed imaginatively. They should at least be given the opportunity to achieve their potential within a reformed upper secondary system, rather than being consigned prematurely to a separate "low road." A minimum requirement for this purpose is that all upper secondary students should be in the same type of school. Resources also need to be devoted to monitoring and responding to the problems of students in trouble. One element in any program of broad-skill development for less academically inclined upper secondary students will be information and communications technologies (ICTs)—not only as a subject for study but also as a medium for teaching and learning other subjects.
- *Transfer more of the cost of post-secondary training to beneficiaries.* If vocational training is to become increasingly post-secondary, ways of transferring more of the cost of such training to beneficiaries need to be explored. In such a model the role of employers in providing and financing skills training for new recruits and existing employees becomes more important, as does that of private training institutions charging fees to individual students. For this to work, a way has to be found to deal with a special kind of market failure—training systems failure.

In conclusion, the direction implied by these propositions and principles is that of convergence between general and vocational education. Convergence implies a need for reform of general just as much as vocational secondary education. Teaching and learning strategies in general as well as vocational education need to shift from those which generate the old skills (applying knowledge acquired by rote) using invariant sources of information, working as a "solo practitioner," and operating in routine unchanging ways to those which generate the new skills needed for global competitiveness. A number of reforms in financing and management of secondary education, both general and vocational, are also needed, including a redefinition of the roles of central Ministries of Education and local governments, and improvements in the formulae for allocating public funds to schools. Further convergence along the lines discussed in this report would facilitate a unified strategy for reform of upper secondary education as a whole, instead of leaving vocational education as a separate, unsolved problem to be dealt with later if at all.

CHAPTER 1

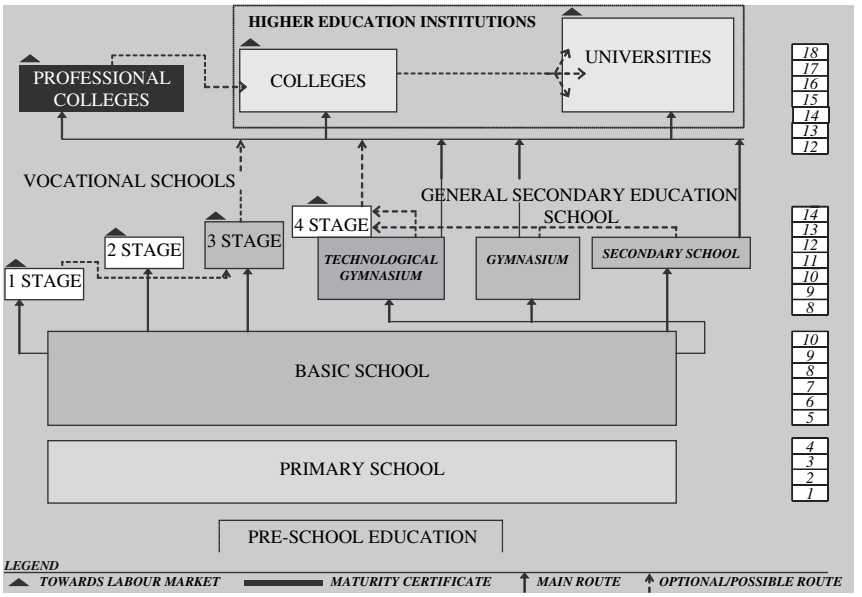
Introduction

Reform of upper secondary education is an area of unfinished business in almost all EU8 countries. This report explores fiscal aspects of such reform, but with a focus on vocational education. Vocational education (VE) is hugely important, (accounting for between 25 percent and 79 percent of upper secondary enrollment in these countries—see Figure 17 below) but is often ignored during discussions of secondary education reform. It cannot, of course, be discussed entirely in isolation. The report sets reform of VE in the context of reform of secondary education as a whole. It also has to consider the implications of any changes in the VE system for post-secondary and other modes of skill development. But its primary focus is on the fiscal efficiency of initial VE[1] at ISCED level 3.[2] The rationale for focusing on reform at this level is that decisions about the skill development system as a whole cannot be made until the role of secondary schools in that system is clarified. Reform of such schools also looks to be a particularly promising way of increasing fiscal efficiency.

1. The report recognizes that there are differences within the initial vocational education system between schools which concentrate on imparting skills for use in the workplace (sometimes designated as 'vocational' schools) and schools which also impart some theoretical knowledge relevant to a vocation (sometimes designated as 'technical' schools). The latter are usually less narrow and heavily practical than the former, and may allow easier access to higher education and achieve better labor-market results. However, the difference is smaller than that between both of them and general schools and, for this reason and because of practical difficulties in distinguishing between them, the report refers to both of them as vocational schools.

2. ISCED 2, to which entry comes after some 6 years of primary education, is often designated as lower secondary education or the second stage of basic education. ISCED 3 is often designated as upper secondary education. These designations are used in this report. For further information on ISCED, see http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm

Figure 1. Vocational Schools Within the Overall System: The Example of Lithuania



Source: Ministry of Education and Science, Lithuania.

The complexity of the VE system, as it has evolved since transition, is an obstacle to easy analysis. For instance, Figure 1 shows the pathways available to students in Lithuania. As in many other EU8 countries, there are four stages of vocational schooling: stage I takes students who have not yet completed basic education and offers them two-year vocational courses at ISCED 2 level; stage II offers two-year courses at ISCED 3 level to those who have completed basic education; stage III offers three-year courses at ISCED 3 level plus general education to those who have completed basic education; and stage IV offers vocational courses at ISCED 4 level to those who have completed secondary education.

Partly because of this complexity, because of data limitations and because the EU8 countries are not a homogenous group, it is very difficult to assemble information on vocational education that is fully comparable between countries. Therefore, not all EU8 countries are always included in the analysis. Indeed, in many countries vocational education is not statistically separated from other types of education. The situation is particularly bad for data on expenditure. As a recent report to the European Commission (Leney and others 2004) commented, "there is very little information on expenditure for initial vocational education and training at the European level, and improving the information about expenditure on IVET needs to be addressed urgently."

This report, nevertheless, sets out to explore the fiscal aspects of reform via a number of propositions about VE in the EU8 countries today.

- It would not be possible or advisable to fund adequately a traditional VE system which would provide ready-to-work recruits with narrowly specialized skills for the economy's enterprises.

- One way to reduce costs to government would be to locate practical training entirely in-plant but this is increasingly difficult.
- EU8 employers' traditional expectations of a fully-subsidized VE system delivering ready-to-work, specifically-skilled recruits are unreasonable.
- Traditional VE was the traditional answer to the question "What to do with those who have performed less well in basic education?" but this answer no longer convinces.
- Parents and students are showing an increasing preference for GE over VE.

Each of these propositions will be discussed in this report not with a view to prescribing a detailed "one-size-fits-all" strategy for all the EU8 countries, but rather to deriving some principles that continued reform of VE could take into account, to the benefit of fiscal efficiency.

CHAPTER 2

Background

The EU8 countries, like other formerly planned economies, inherited a system of vocational education (VE) that has proved resistant to change. It was based on the assumption that everyone has to be trained for a specific occupation before starting work and that it is the function of vocational schools to provide such training. Since the economies were centrally planned, it could also be assumed that the nature of jobs would not change over a person's working life, and it was possible to calculate the numbers of each type of job, and hence the numbers of each type of trainee, that were needed. Schools were tightly linked to state enterprises. In the USSR (the source of the pervasive model):

> the typical vocational school was built in order to provide trained personnel for a given enterprise. Located near the enterprise, it depended on the enterprise for equipment, instructors for the practical activities, internships and jobs for the graduates. In line with this symbiotic relation, the factories subcontracted with the school for the manufacturing or assembly of parts they needed on their own production lines. (Johanson 2000)

The socialist countries of Eastern and Central Europe varied in the extent to which they adopted this model. In general, the Baltic countries started the transition with lower gross enrollment rates in vocational/technical secondary education than the other EU8 countries—ranging from 28 percent in Estonia, to 34 percent in Lithuania and 46 percent in Latvia in 1990. Enrollment rates were higher in Central Europe—particularly in Poland (68 percent), but also in the Czech Republic (64 percent), Slovakia (63 percent) and Hungary (56 percent)—and in Slovenia (61 percent in 1993).

However, in all EU8 countries, narrowly specialized vocational education tended to be provided early. It provided detailed practical instruction for numerous highly specific

occupations; for example, in Poland in 1991, there were 250 occupational courses. There was little theoretical instruction in the underlying scientific and quantitative principles of these occupations, and thus graduates were able to be productive only within the confines of these specializations and only as long as the technology remained unchanged. As in the USSR model, much vocational education in these countries relied heavily upon on-site practical experience in state enterprises.

Early in the process of transition, it became clear that the planned-economy model described above was in urgent need of reform. In a context of transformational recession and fiscal crisis, government funds for VE dwindled, teachers were poorly qualified and their salaries low, and virtually nothing was being spent on materials and equipment. The crisis in enterprises meant that employers could not afford to train or to pay for training and were not expanding recruitment. And most parents could not afford to pay much for training.

As part of the transition to markets, the structure of demand was changing (from industry to services, tourism and, in some countries, agriculture), as was that of occupations (from specific to broad, becoming more flexible over time, and requiring higher levels of general education). Changing but still relatively narrow wage differentials at this level affected the incentives to acquire relatively low-level technical skills, and unrestructured enterprises were not interested in becoming involved in VE. Social partner organizations were weak and/or discredited. Institutions and instruments for managing a vocational education and training system in a market economy were missing or very new—for instance, decentralization, monitoring, subcontracting, competitive tendering, accreditation and quality control, and dissemination of pilot innovations. Quality controls had traditionally been over inputs (curricula) rather than outputs (final examinations/standards). And there were very few private training institutions.

The efficiency of government VE institutions in the whole region was in doubt because of this funding and demand crisis, their previous narrow and early-specialization approach and the stigma, in the case of lower-level VE, of taking "failures" from relatively disadvantaged families (for whom such VE was a dead end, providing no possibility of progression to higher levels of the education system) and their lack of a link with the new type of labor market. In some countries there was a spontaneous, rather disorganized response to market forces, as government institutions starved of funds competed with each other and with the few private institutions for students who could pay[3] and tried to generate their own revenue by selling products or services or leasing facilities to the community or the private sector.

A 1997 synthesis report on the outcomes of the PHARE program, Reform of Vocational Education and Training in the Czech Republic, listed, inter alia, the following problems resulting from the initial transition period: inadequate participation of social partners; increased streaming[4] at lower secondary level; decreasing interest in VE coupled with increasing irrelevance to the labor market, unsustainable financing of VE from budgetary sources, insufficient investment and inadequate quality control; and the absence of a system of in-service management and teacher training. [Ministry of Education, Youth and Sports, Czech Republic: 6].

3. For further discussion of the state of VET reform around the world in the second half of the 1990s, including Hungary, Poland and the Czech Republic among current EU8 countries as well as Russia and Kazakhstan, see Gill, Fluitman, and Dar (2000).

4. Early grouping of students by perceived ability levels.

Since 1992, there have been sporadic, and in some cases, moderately successful efforts to reorient and diversify VE systems in the new EU countries to respond to changing social and economic needs and to make VE more attractive to learners by increasing its focus on quality assurance and on employability.

Early in the transition, Hungary undertook a series of reforms of its VE system, to increase flexibility, efficiency and responsiveness to evolving labor market needs. The main features of the Hungarian reform in the early and mid 1990s were: (i) a major decentralization of responsibility for managing education and training, including the involvement of employers and trade unions in the management of vocational training; (ii) extension of general education by two years (grades 9 and 10) prior to the start of vocational orientation; (iii) development and delivery of vocational orientation in the form of broad job families in place of the separate occupational specializations previously offered; (iv) development of career counseling for students; and (v) development of post-secondary training, including a network of Regional Human Resource Development centers, to update skills and to support occupational mobility. The underlying objective of these reforms was to extend and improve general education in basic quantitative, scientific and problem-solving skills for all young people while still providing vocational orientation prior to specialized vocational training at the post-secondary level.

Since 2003, Hungary has continued its focus on the modernization and diversification of VE through the further development of *Vocational Schools* and *Secondary Vocational Schools.* In the Vocational Schools program in which 22–26 percent of the cohort were enrolled in 2004, grade 9–10 students receive a general education with some basic vocational education and grade 11–12 students are prepared for vocational education examinations. The framework curriculum comprises an occupational core curriculum together with GE curriculum for grades 9–12 and has been developed for 21 occupational groups covering the major sectors of the economy. There is also provision in these vocational schools for those students who had difficulty with academic subjects in grade 8. In order to pass the Maturita and to proceed to higher education, students in these *Vocational Schools* need to have about 2–3 more years of part time GE, whereas the *Secondary Vocational Schools* offer further education to grades 13–14 with a possibility of direct access to higher education.

Poland initiated a program of education reform in 1999 and, by 2002, a new system of post-lower-secondary schools was in place (basic vocational, general secondary, profiled secondary, technical secondary), as well as post-secondary schools for graduates who had attained secondary education levels. A new external and objective examination system (the Nowa Matura) was established to facilitate comparability of examination results and school quality and assessment. New 3-year specialized secondary schools (Liceum profilowane: ISCED 3) were introduced in September 2002, providing education in about a dozen categories of general vocational knowledge and skills. Graduates of these schools who pass the Matura receive a certificate which allows them to apply for admission to a higher education institution. Those graduates who do not take the Matura receive a certificate of completion confirming the secondary education and general vocational preparation of its holder. However, it does not entitle its holder to apply for admission to a higher education institution.[5] These profiled lyceums were established with the objective of giving

5. Source: Ministry of Education and Science. Poland.

students general vocational knowledge and skills for their future professional life through modular curricula taught through a series of interdisciplinary blocks. Originally, these schools had been intended to replace traditional vocational schools, but in the event the traditional schools survived: the national system of vocational education continues to be provided according to the former sectoral classification of occupations. Curricula in vocational schools are defined by the Ministry of Education in cooperation with sectoral Ministries. While the profiled lycea may not have fulfilled expectations in terms of examination results (see Figures 20 and 21 below) and attractiveness to students, this compromise in the implementation of the originally intended reform should be borne in mind.

Early in the transition, Slovenia too moved decisively to reorient its VE to the labor market by making it the joint responsibility of social partners (employers and trade unions) and the state. The common aims and goals of secondary vocational and technical education were defined in a common curricular document. This document stresses attainment targets in interdisciplinary fields and interest activities. Short-term vocational programs should last a year and a half for students and apprentices that have completed their basic education, and two and a half years for those without completed basic education. They finish with a final examination. The certificate of the final examination enables students to enter the labor market or to enter the first year at any other (upper) secondary vocational school. Pupils who have successfully completed elementary school can enroll in 3-year secondary vocational programs. Vocational education programs are offered in the dual, that is the apprenticeship, system and/or in the school-based system. The core curriculum is common to all programs and includes the theoretical and practical knowledge and skills specified by occupational standards and required for a certain vocational qualification, regardless of the type of educational provision. Practical training in the framework of the dual system is offered by employers. Programs also specify the part of practical training that can be provided by schools and/or inter-company centers as practical instruction. The certificate of the final examination enables students to enter the labor market or to continue education in two-year vocational-technical programs, leading to a qualification at the level of a secondary technical school.

Spurred on by the need to prepare National Development plans and by the impetus of joining the EU in 2004 and taking into account the Lisbon Process, the Copenhagen Declaration and the Maastricht Communiqué, the reform of VE has become a virtually continuous process in all EU8 countries. All have the objective of creating stronger labor market ties by taking employers' expectations into account. All wish to establish a more flexible and accommodating VE system with better quality assurance mechanisms and to expand the provision of secondary pathways with maturita (higher education entry qualifications). Core competencies, such as presentation and management skills, teamwork and entrepreneurship, foreign languages and ICT skills are standard features of most VE curricula. For example, the Czech Economic Growth Strategy for 2007–13 sets out to turn the country into a European centre of knowledge and technology with "Human Resources development—education and employment" as one of its priority areas. The Estonian National VET system development plan for 2005–08 seeks stakeholder cooperation, labor-market relevance and better quality VET with a better image to ensure young people's smooth transition into the labor market. While, in Slovakia, until recently, there were still 1032 officially recognized study and training branches; a decree in 2005, amended the study and training braches by abolishing more than 500 and establishing 200 new ones (CEDEFOP 2006).

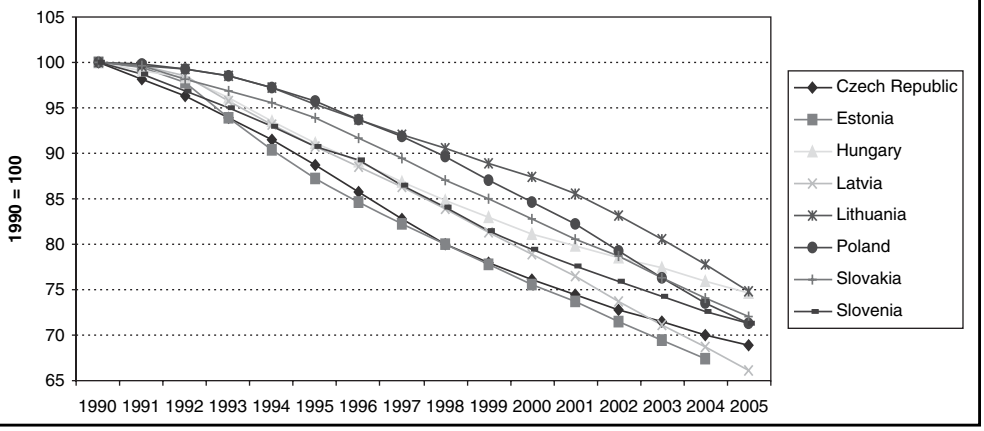
Box 1. Vocational Education Reform in Chile

An example of reform of vocational education, similar to but more sweeping than Hungary's, is that of Chile—a country with a relatively high ranking on the World Economic Forum's innovation sub-index (see Table 2 below). Reform of secondary education between 1998 and 2002 postponed the onset of divergence between "academic" and "technical-professional" schooling from grade 9 to grade 11 and narrowed the gap between the two streams. In grades 11 and 12 both streams combine general with vocational education (on which academic students spend a third of their time and technical-professional students two thirds), with specializations designed to prepare students for work in a particular occupational sector rather than in a particular job. Thus, rather than trying to predict changes in technologies and occupations, schools prepare students with flexible skills.

Source: Miranda (2003).

An important part of the context for further VE reform is the falling number of school-age children in the EU8 countries. As Figure 2 shows, the trend is remarkably similar in all countries, with falls in the 0–17 population of between 25 and 34 percent between 1989 and 2005.

Figure 2. Trends in Population Aged 0–17, EU8 Countries, 1990–2005

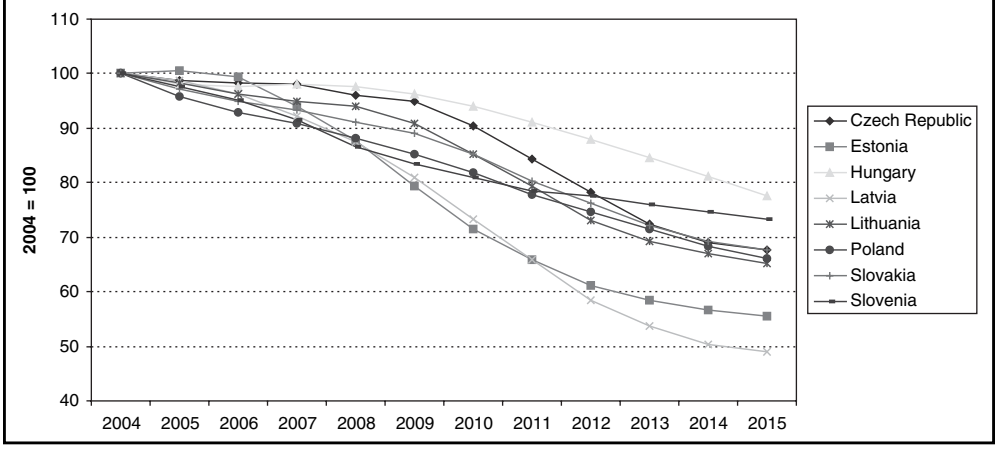


Source: UNICEF, TransMONEE database.

This means that all EU8 countries face the prospect of falling numbers of upper-secondary-school-age children, to the benefit of planners of education budgets. As Figure 3 shows, the number of 15–18 year olds is expected to fall by between 22 percent (in Hungary) an.d 51 percent (in Latvia) between 2004 and 2015.

A final part of the context that cannot be ignored by EU8 policy makers is globalization. As Mertaugh and Hanushek (2005) point out, education plays a crucial role in supporting the process of development in a global, competitive environment from low-income, resource-based economies to high-income, knowledge-based economies. The skills needed to progress from factor-driven, through investment-driven to innovation-driven growth are those of "synthesis, problem solving, application and 'thinking outside

Figure 3. Projected Trends in Population Aged 15–18, EU8 Countries, 2004–15



Source: EUROSTAT.

the box.' " They suggest that "a fundamental reorientation of education is needed to support global competitiveness" in the EU8 countries, including the imparting of "a much more refined ability to deal with new technologies and new knowledge along with the distinct possibility of more frequent individual changes in careers and job activities."

Globalization also involves an increase in movement of labor, particularly within the EU. Since the beginning of May 2004, workers from the EU8 countries have been able to move without restriction to Ireland, the UK and Sweden, and in April 2006 the remaining EU-15 countries (with the exception of Austria, Denmark and Germany) announced that they would lift or ease their restrictions. The scale of such migration has been large. For instance, Ireland alone received 186,000 workers from the new EU member countries between May 2004 and February 2006 (compared with 35,000 in the sixteen months prior to accession). Most of the 112,000 who arrived in 2005 were from the EU8, of whom 65,000 from Poland, 18,700 from Lithuania, 9,300 from Latvia, 9,200 from Slovakia, and 4,500 from the Czech Republic. The scale of such migration to Sweden has been smaller—5,559 in 2005, compared with 2,381 two years earlier (Doyle et al: 2006). The emigration of skilled workers to the EU-15 raises the fiscal question, "who should pay for the training of such workers?" if reform of the VE system implies a postponement of specialist vocational training until after the completion of a high-quality secondary education. Should the taxpayer foot the entire bill of such post-secondary training or should the beneficiaries finance all or part of the cost?

CHAPTER 3

Vocational Education and Fiscal Efficiency

Continued reform of VE in the EU8 countries can contribute to fiscal space and efficiency in various ways.

It may contribute to fiscal space by attracting grants from the EU, particularly if it is oriented towards the labor market. Table 1 shows that, of the 22,000 million euros available from EU structural funds to the EU8 countries in 2004–06, 21 percent were allocated to human resources projects: Slovenia, Hungary, and Slovakia particularly favored such projects. In some cases these were related to VE: for instance, Estonia used some of its allocation in support of a national development plan for the VET institutions network. In 2005, Lithuania launched 67 projects in the field of lifelong learning with 108 million litas (€31 million) of ESF funding, and a further 211 million litas (€61 million) is allocated for this purpose in 2004–06.

However, based on the experience of countries which have been apparently successful in their utilization of EU structural funds (such as Ireland and Spain), outcomes will depend on adequate capacity to absorb and utilize this funding. Moreover, caution should be exercised in order to avoid the creation of add-on programs (particularly if they have low returns) purely for the sake of attracting EU funds.

Looking further ahead, improvement in the quality of schooling at this level could contribute (by improving labor mobility from lagging to more dynamic regions of a country[6]

6. A forthcoming World Bank Study, *Labor Mobility in the New Member States of the EU,* provides convincing evidence on "the robust relationship between educational attainment and mobility" which suggests "that those who are left behind in lagging regions are predominantly the low skilled workers with lowest employment prospects. This is confirmed by the weak relationship found between previous year unemployment and the decision to migrate. This suggests that lack of education is an important barrier to mobility. As such, investments in education and training may facilitate the adjustment process, as workers acquire the necessary skills to find jobs in more dynamic regions and move away from lagging parts of the country."

Table 1. EU8 National Commitments for the Use of EU Structural Funds During 2004–06
(million euros)

Country: Sector:	Infrastructure	Enterprises	Human Resources	Agriculture	Regional Dev.	Other	Total
Czech Republic	393	417	510	279	726		2326
Estonia	230	122	127	116		24	618
Hungary	467	612	803	453	512		2847
Latvia	338	259	220	192		28	1036
Lithuania	538	346	250	209		23	1366
Poland	1603	1728	2024	1899	4081	34	11369
Slovenia		233	129	40		3	405
Slovakia	632	226	424	276			1558
Total	4201	3942	4486	3463	5320	113	21526

Source: ETF (2005: Table 10).

and via its impact on entrants to higher education) to greater competitiveness in skill-intensive sectors, to the benefit of growth rates and government revenue.

As Table 2 shows, all the EU8 countries except Latvia are in the top half of the World Economic Forum's innovation sub-index league table (which reflects technological readiness relative to competitor countries, research and development, role of universities, and so forth) but the highest placed EU8 country is below India and five fail to make the top forty.

Table 2. Ranking by Innovation Sub-index, 2005
(EU8 countries, selected OECD countries, Chile, China, and India, out of 117 countries)

Countries	Ranking	Countries	Ranking
USA	1	Chile	32
Japan	2	Hungary	39
Germany	3	Lithuania	40
Finland	5	Slovakia	43
India	26	Poland	45
Czech Republic	27	China	48
Spain	28	Latvia	62
Slovenia	31		

Source: World Economic Forum web site, Table 9.

More immediately, there may be scope for increasing expenditure efficiency. As already indicated, this scope will vary from country to country, with the varying size of their VE systems. Unfortunately several countries do not separate VE from other types of education in their budget statistics, so we have to rely on estimates. Table 3 shows estimates made by the European Training Foundation of EU8 total spending on vocational education and training in 2000. These include other levels besides secondary, but are useful orders of magnitude in the absence of less aggregated information. As can be seen, it was equivalent to around 1 percent of GDP and 20 to 23 percent of public spending on education in Poland, the Czech Republic, Hungary and Slovakia; it was lower in the Baltic countries and Slovenia—0.7 percent of GDP or less.

Table 3. Public Expenditure on All Types of VET, 2000
(as a percentage of GDP and as a percentage of total public expenditure on education)

	% of GDP	% of Public Expenditure on Education		% of GDP	% of Public Expenditure on Education
Czech Republic	0.9	22.5	**Lithuania**	0.6	10.5
Estonia	0.7	12.5	**Poland**	1.0	20.0
Hungary	0.9	20.0	**Slovakia**	0.9	21.4
Latvia	0.7	13.0	**Slovenia**	0.7	12.5

Source: ETF (2005: Table 12).

More recent data are scattered. Table 4 shows public expenditure on vocational education (secondary only in all except Poland, which includes ISCED 4 level) in five of the eight new member countries in 2003 and 2004. In all cases except the Czech Republic the figures are lower than those for 2000 in Table 3. This is partly because of differences in coverage, but it also reflects a probable fall in the weight of VE in education budgets and GDP in the past few years.

Table 4. Public Expenditure on Vocational Education, 2003 and 2004
(as a percentage of GDP and as a percentage of total public expenditure on education)

Poland 2004 ISCED 2, 3 & 4		Czech Republic 2003 ISCED 2 & 3		Slovakia 2004 ISCED 3		Lithuania 2003 ISCED 2 & 3		Estonia 2004 ISCED 2 & 3	
% of GDP	% of pub exp on edn	% of GDP	% of pub exp on edn	% of GDP	% of pub exp on edn	% of GDP	% of pub exp on edn	% of GDP	% of pub exp on edn
0.56%	11.0%	0.97%	20.0%	0.58%	15.7%	0.29%	5.2%	0.44%	. . .

Sources: Country questionnaires; World Bank (2004: Table 1); and for Estonia. http://www.eiro.eurofound.eu.int/about/2005/10/feature/ee0510103f.html

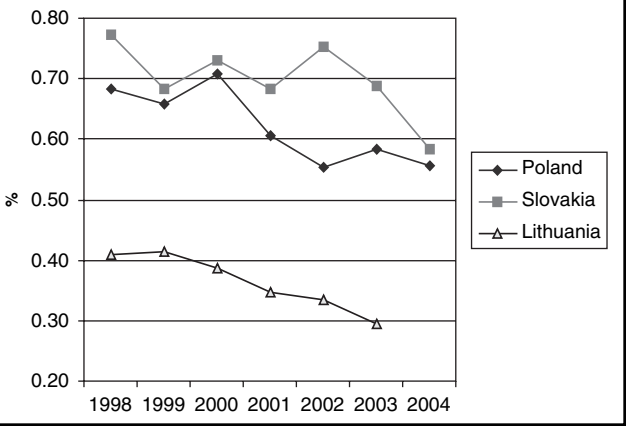
Figure 4 supports this interpretation. Public expenditure on vocational education (with the same definitions as in Table 4) has fallen significantly as a percentage of GDP (and of the educational budget) since 1998 in all three countries for which data are available—Poland, Slovakia and Lithuania. Comparisons with other EU members are difficult, because they do not use the vocational/general distinction in their expenditure data. The most recent available figures, involving much research on the part of a large Dutch research team (Kaiser and others 2000), are for 1997, when public expenditure on secondary vocational education was estimated to be equivalent to 0.39 percent of GDP in the Netherlands, 0.42 percent in Germany, 0.6 percent in Sweden and 0.28 percent in the UK. Thus Lithuania's relatively modest percentage may have been nearer to the EU-15 norm than was Poland's or Slovakia's.

Fiscal efficiency is improved by reducing the cost to government of providing a service, in relation to its benefit. As already mentioned, statistics on expenditure on VE are scarce. Nevertheless, it is clear that, even when it is under-equipped, the unit cost of VE tends

to be higher than that of GE. As Table 5 shows for three countries, public expenditure per student in VE schools is invariably higher than that in general schools at a comparable level.

Figure 5 shows the extent by which unit costs in vocational schools are higher than those in general schools at upper secondary level, based on the data in Table 5. The differences range from 10 to 79 percent, with Lithuania showing the greatest difference. Such differences are not confined to the EU8 countries: in Finland, for instance, expenditure per student in vocational education, at €7,616, is 71 percent higher than in general upper secondary education (OECD 2005). Germany, too, has very high costs of vocational education, as discussed in Box 4.

Figure 4. Public Expenditure on Vocational Education
(as percent of GDP)



Source: Country questionnaires.

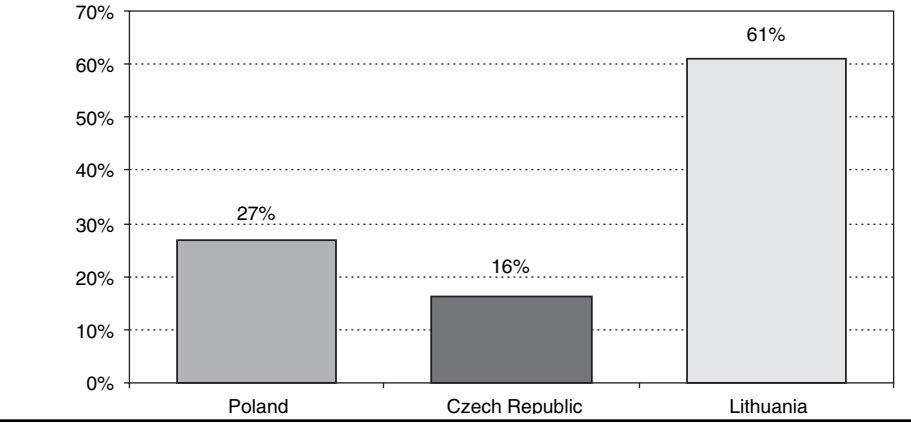
Table 5. Public Expenditure, Number of Students, and Unit Cost, By Level and Type of School

	Type & Level of School	Expenditure (million local currency units)	Number of Students ('000)	Unit Cost (local currency units)
Poland 2004	Lower 2nd gen	7,056	1,649	4,279
	Upper 2nd gen	2,863	748	3,829
	Voc/tech all levels	5,125	1,055	4,859
Czech Republic 2003	Upper 2nd gen	5,535	101	54,744
	Upper 2nd voc	24,840	391	63,555
Lithuania 2003	Lower 2nd gen	974	324	3,007
	Lower 2nd voc	33	10	3,310
	Upper 2nd gen	244	86	2,833
	Upper 2nd voc	132	29	4,562

[a]million local currency units
Source: Country questionnaires.

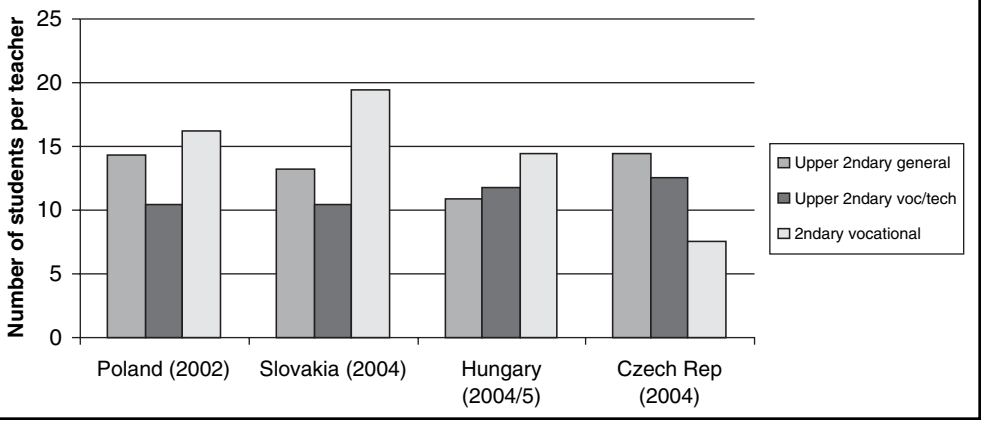
The difference in unit costs may partly reflect differences in student/teacher ratios: Figure 6 shows that such ratios tend to be higher in upper secondary general schools than in upper secondary vocational schools, with Hungary as the exception. In schools offering lower-level vocational courses there is a wide variation in student/teacher ratios between countries, but they tend to be higher than at upper secondary level.

Figure 5. Percent by Which Vocational School Unit Costs Exceed General School Unit Costs at Upper Secondary Level, 2003 and 2004



Source: Table 5.

Figure 6. Student/Teacher Ratios, By Type of Secondary School



Notes: "Secondary vocational" denotes schools offering shorter apprenticeship courses at ISCED 3 level in Slovakia and Hungary and ISCED 2 level schools in Poland and the Czech Republic
Source: Country questionnaires.

Vocational schools tend to have a larger number of non-teaching staff than do general schools: for instance, in Hungary in 2004/5, non-teachers represented 29 percent of total school staff in upper secondary general schools, 32 percent in upper secondary vocational/technical schools and 34 percent in secondary vocational schools. In Slovakia in 2004 the contrast was even greater: 14 percent of staff in upper secondary general schools were non-teachers, compared with 28 percent in comparable vocational schools.

Other reasons for the higher costs of vocational schools lie in their larger premises including underutilized workshops (which need heating), their provision, in some cases, of dormitories and sometimes the granting of stipends to students (since those from disadvantaged families are over-represented). The proportion of vocational school students

in hostels may be higher in former Soviet-Union countries than in other EU8 countries: it was estimated at 21 percent in Lithuania in 2004. In Slovakia in the same year the proportion was higher for vocational (8 percent) than for general schools (4 percent), as it was in Poland (2 percent compared with 1 percent), but was relatively low in all cases.

The proportion of students receiving stipends varies widely between countries: from 65 percent of vocational students in Lithuania, to 24 percent in Poland (compared with 13 percent of general education students) and only 2 percent in Slovakia (double the percentage in general schools). The tendency for stipends to go to groups defined by the type of school attended rather than by individual circumstances is illustrated by their allocation in Poland in 2003/4, shown in Table 6. Social stipends are intended for students from low-income families, while incentive stipends are granted as a reward for good results. As can be seen in Table 6, a larger percentage of students in general, profiled and technical secondary schools than in basic vocational schools received social stipends, even though their average family circumstances can be assumed to have been more favorable.

Table 6. The Percentage of Students Receiving Social and Incentive Stipends, by Type of School, Poland, 2003/2004

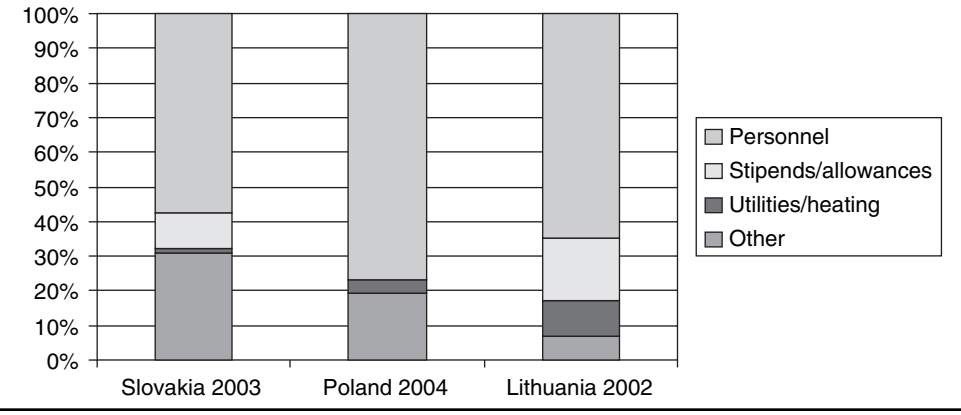
	% Receiving Social Stipends	% Receiving Incentive Stipends
Primary	0.3	0.3
Lower secondary	0.4	0.5
General secondary	11.2	0.9
Profiled secondary	18.9	0.5
Technical secondary	21.9	0.9
Basic vocational	2.7	0.1
Art schools	4.1	1.6
Post-secondary	2.0	0.6

Source: Ministry of Education and Science, Poland.

Figure 7 shows the breakdown of expenditure between economic categories by vocational schools in Slovakia, Poland and Lithuania in the early years of the 21st century. Poland differs from the others in the large share of personnel expenditure—in general, this is lower in vocational than in general schools: there is also a discrepancy between the negligible expenditure shown on stipends and the relatively large proportion of students in profiled and technical secondary schools reported to be receiving them in Table above. This item must be classified under another heading, as it is in Slovakia where vocational schools' spending on stipends is near zero but 10 percent of their total spending goes on "child benefits." A relatively large part of Slovakian vocational schools' budget also goes on food (10 percent) and hostels (3 percent), and 13 percent goes on non-teaching personnel expenses: the amount available for quality improvement is very small. This is the case, also, in Lithuania, where the amount left over after personnel expenses, stipends and utility bills have been paid is only about 7 percent of the total: only 0.08 percent is available for construction and renovation, 0.35 percent for equipment, 0.17 percent for training materials and 0.09 percent for re-training staff.

If VE, as it is, is high-cost, improved but still traditional VE would be even higher-cost. The difference between the unit costs of vocational and general education would be even higher if the schools were equipped with up-to-date equipment and their teachers paid market wages and constantly retrained to keep up with technological changes. As the ETF (20005: 36) notes, "the proportion of expenditure . . . devoted to innovation in learning, the

Figure 7. Breakdown of Vocational School Expenditures



Notes: All types of upper secondary vocational schools in Slovakia; ISCED 2, 3 and 4 vocational schools in Poland; all levels of vocational schools in Lithuania.
Sources: Country questionnaires for Slovakia and Poland; interviews in Lithuania, 2004.

renovation of infrastructure and the upgrading of technical equipment for practical training is extremely limited." The European Centre for the Development of Vocational Training (CEDEFOP) estimates, quoted by ETF, imply a need to increase expenditure on vocational education by 50 to 100 percent in order to achieve the desired technical standard.

On the benefit side, the labor market outcomes of different types of secondary education vary from country to country. In Poland, for instance, as Figures 8 and 9 show, upper secondary VE delivers slightly lower unemployment rates than does GE for both males and females, but makes very little difference to average earnings.[7]

Moreover, Figure 10 suggests that a higher proportion of those with vocational than of those with general secondary education in Poland is below the poverty line ($4.30 per day in 2000 PPPs).

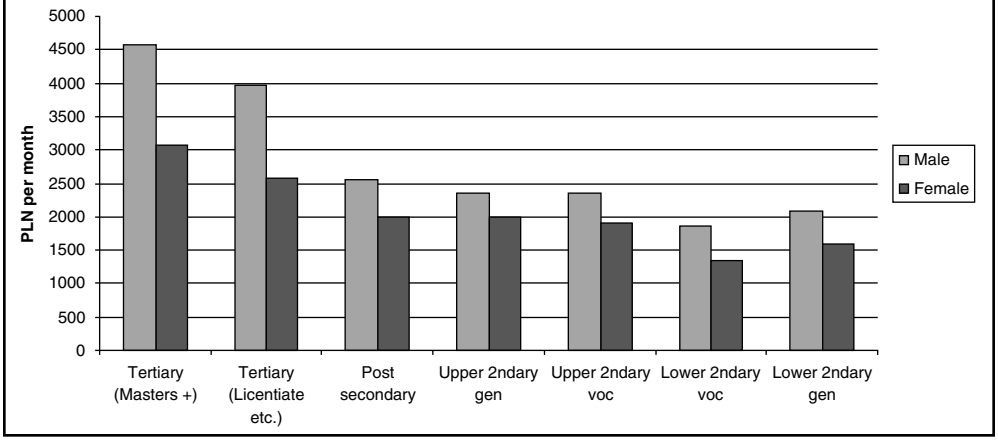
In Slovakia the picture on earnings is similar (Figure 11). The average pay of upper secondary general graduates of both sexes is slightly but not significantly lower than that of full vocational/technical graduates, and higher than that of those who combine apprenticeship courses with successful completion of the school-leaving examination (*maturita*).

In Slovakia, data are available on unemployment rates for the 25–34 age group (Figure 12), which also show little difference between different types of full upper secondary graduates; those with apprenticeship qualifications again do worse than general school leavers.

In Lithuania, both earnings and unemployment-rate data are available on the 25–34 age group that is more interesting to 16-year-olds considering their future (Figures 13 and 14). Females with upper secondary VE have lower unemployment rates, but both sexes have considerably lower average pay than those with GE. The return to upper secondary GE (over lower secondary or basic education) for this age group, adjusted for the probability

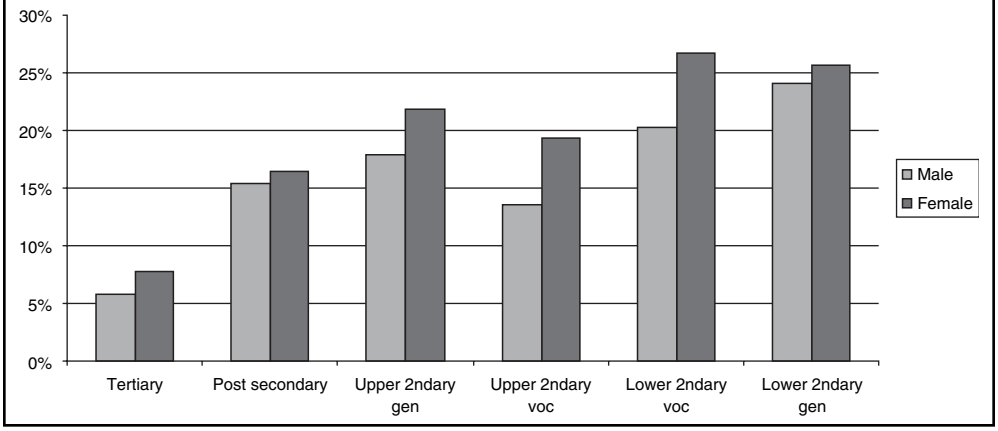
7. Data on the relative labor market impact of vocational and general education have to be interpreted with caution, since vocational students are on average weaker academically, but they do affect the aspirations of students and parents. And it should be noted that the general education graduates who go directly to the labor market, rather than progressing to higher levels in the education system, are also the weaker ones.

Figure 8. Average Earnings, By Level of Education and Sex, Population Aged 15+, 2004, Poland



Source: Labor Force Survey database

Figure 9. Unemployment Rate, By Level of Education and Sex, Population Aged 15+, 2004, Poland



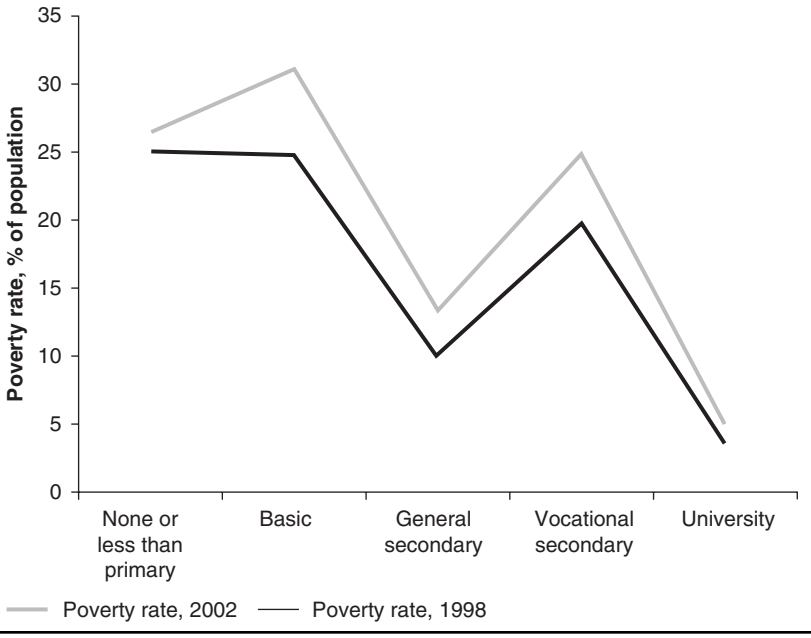
Source: Labor Force Survey database.

of having a job, is around 3,070 litas for males and 1,930 litas for females, compared with 1,710 and 880 litas respectively for VE.

To summarize on labor market outcomes, there is not much difference between those of VE and GE leavers in Poland and Slovakia, but in Lithuania VE leavers in the 25–34 age group do worse than GE leavers in both unemployment rates and average earnings. High rates of unemployment among young VE leavers raise further doubts about attempting to impart job-specific skills in schools: such skills deteriorate rapidly without use.

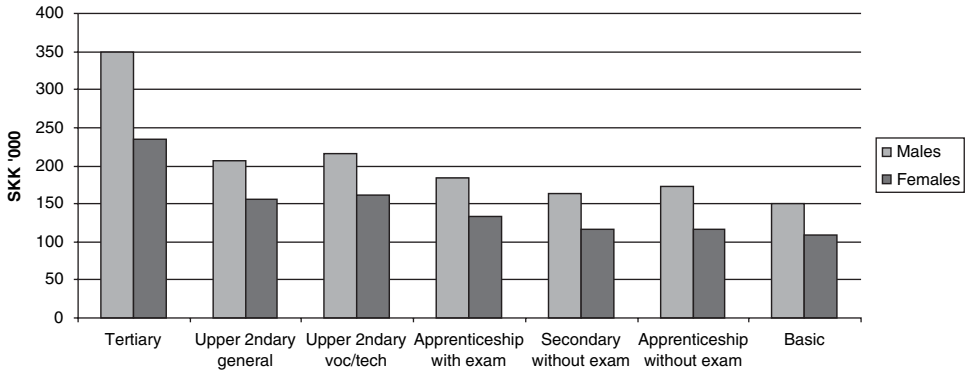
In short, it will be argued in the rest of this report that the case for reform of VE can be firmly based on an expectation of improvement in outcome in relation to the cost to the taxpayer, that is, an improvement in fiscal efficiency.

Figure 10. Change in Poverty Rate, By Education Level and Type, Poland 1998–2002



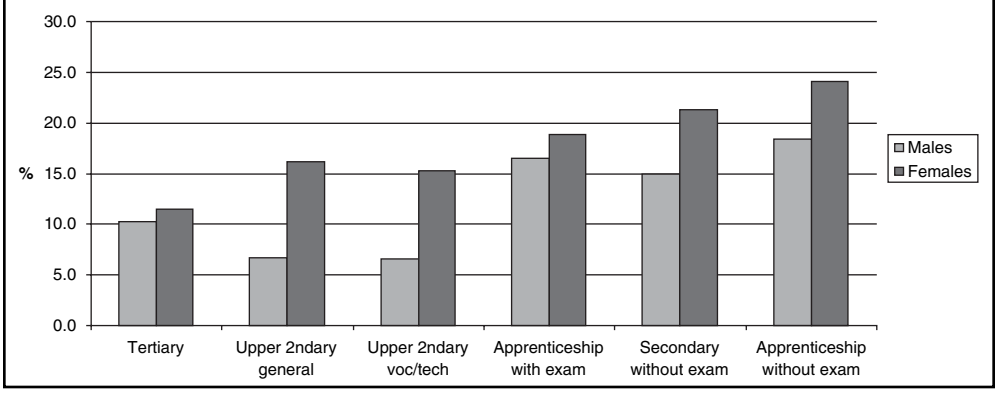
Source: World Bank (2005c, Figure 1.5).

Figure 11. Average Annual Pay in Main Job, By Sex and Education, 15+ Population, 2004, Slovakia



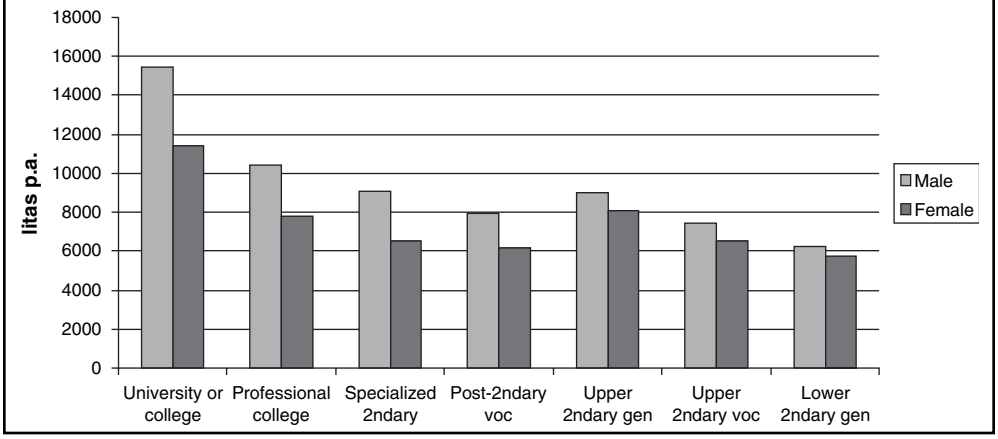
Source: Country questionnaire.

Figure 12. Unemployment Rates, By Sex and Education, 25- to 34-Year-Olds, Slovakia, 2004



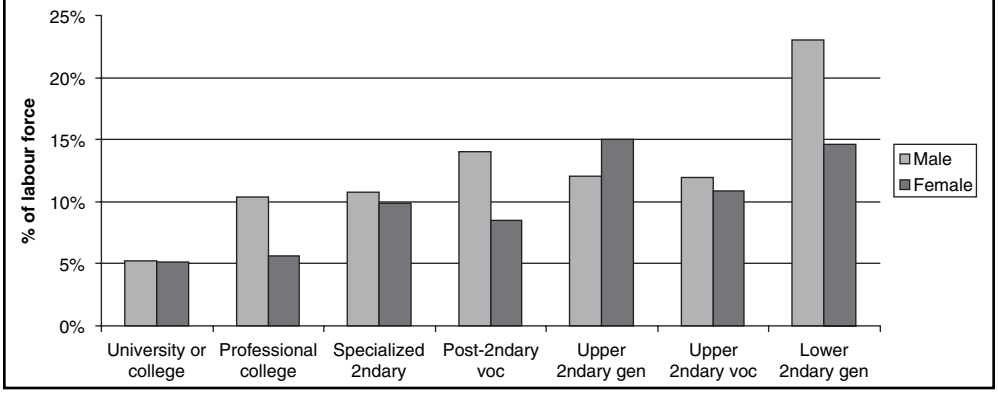
Source: Country questionnaire.

Figure 13. Average Annual Pay, By Sex and Education, 25- to 34-Year-Olds, Lithuania, 2004



Source: Labor Force Survey database.

Figure 14. Unemployment Rate, By Sex and Education, 25- to 34-Year-Olds, Lithuania, 2004



Source: Labor Force Survey database.

CHAPTER 4

Some Propositions

As already indicated, this report explores the scope for improvements in fiscal efficiency via a number of propositions about VE in the EU8 countries today. Each of them will now be discussed in turn—with a view to deriving some principles that continued reform of VE could take into account.

It would not be possible or advisable to fund adequately a traditional VE system which would provide ready-to-work recruits with narrowly specialized skills for the economy's enterprises

Although it already accounts for a large share of public educational expenditure and of GDP (see Table 4 above), the reality of vocational education in most EU8 countries today is that it would need far more funding to achieve its traditional objective (of providing ready-to-work recruits with narrowly specialized skills for the economy's enterprises). This is reflected in its out-of-date equipment oriented to out-of-date specializations and ageing, poorly paid teachers.

The quality and relevance of technical equipment in schools was described by the European Training Foundation on the eve of accession as a "major issue." Visits to schools and inspectors' reports confirmed that there were:

> many workshops where students work on more than 50-year-old machines. There are many vocational schools involved in mechanical engineering with no computer numerically controlled (CNC) lathes or milling machinery Meanwhile, cooperation between schools and businesses is weak and does not allow students to compensate for the lack of learning opportunities on modern devices at school by developing skills in a real working environment. (ETF 2003).

A survey conducted in secondary vocational schools in the Czech Republic found that about 65 percent of students did not gain experience in a real workplace during their studies.

The ETF felt strongly that, "contrary to what we saw in some countries, new curricula should not be implemented in any school without the guarantee that updated equipment will be available."

A way out of this dilemma that has been explored in a number of countries is to locate such equipment in local centers, each of which serves a number of schools. For instance, in Poland 130 Practical Training Centers have been set up, which "provide practical educational and training facilities with modern equipment, offering high-quality VET to young people and adults, as well as specialized training for teachers" (ETF 2002). The problem, in an era of rapid technological change, is that such centers need to be reequipped every few years; this is obviously less expensive than reequipping every vocational school but the cost is still likely to be extremely high.

As for teachers, the best of them (particularly those with competence in foreign languages, economics or ICT) have been attracted to higher-paying jobs in the private sector. In general, salaries of teachers (whose qualifications tend to be higher than the national average) are lower in relation to GDP per head in the EU8 countries than in most other EU members: for example, upper secondary school teachers with 15 years' experience in 2003 earned an amount equivalent to 56 percent of GDP per head in Slovakia, 82 percent in Poland, and 122 percent in Hungary, compared with 149 percent in Finland and 194 percent in Germany (UNESCO Institute of Statistics). In addition, salary scales tend to be hierarchical, compressed and unrelated to the labor market. For example, in the Czech Republic in 2004, the premium over the national average wage for upper secondary vocational technical teachers was only 16 percent. And in Lithuania in 2001–2 the salary of a starting teacher in an upper secondary vocational school, including maximum bonuses, was equivalent to 83 percent of national average earnings and less than half the average earnings of technicians in the financial intermediation sector; even a vocational teacher with typical qualifications and fifteen years of experience was paid only 18 percent more than the national average and 30 percent less than the finance sector technician (World Bank 2004).

In these circumstances it is no surprise that the vocational school teaching profession is ageing and that it is becoming increasingly difficult to attract newly qualified teachers (ETF 2003). Women are also over-represented among vocational teachers, accounting for 60 percent of the total in the Czech Republic and Estonia and 68 percent in Slovakia.[8] Moreover, many such teachers do not have a relevant teaching qualification: for example, 35 percent of teachers in ISCED 2 vocational schools in Slovakia are unqualified. With the fast pace of technological change, constant re-training is necessary, but the motivation is missing: a survey in Slovakia, for instance, found that 86 percent of vocational teachers were not interested in taking part in continuing training (ETF 2003).

One way to reduce costs would be to locate practical training entirely in-plant but this is increasingly difficult

Location of practical training in plants rather than in schools or practical training centers is desirable in order not only to reduce costs to government but also to ensure that train-

8. The over-representation of women in the teaching profession, general as well as vocational, is not in itself a problem but reflects the lack of attraction of salary and conditions in the profession to higher-earning males.

ing is related to today's rather than yesterday's technology. Even practical training centers rapidly become "museums of technology." It implies a need to develop modern apprenticeship systems with the support of companies.

Several EU8 countries have aspirations in this direction but tend to run into difficulties. In Hungary, corporations are required to spend the equivalent of 1½ percent of their wage costs on practical training, but over the past fifteen years the location of such training has shifted steadily from workplaces to school workshops, and "the most serious problem is the lack of interest of corporations in vocational training" (Köpeczi-Bócz 2004). Slovenia, as already discussed, has introduced a "dual education system," with subsidies for three-year apprenticeships in about 40 vocations (Ammerman 2004), but there have been some difficulties when companies have been asked to contribute financially to this scheme and the process is developing slowly (ETF 2003).

In Poland the Craft Association[9], which has around 300,000 small companies as members, provides practical training to around 90,000 young craftsmen who are also attending vocational schools (some of them run by the Association). Each of these "juvenile workers," aged 16–18, receives a wage and social security contribution from the employer, which is refunded by the state: the employer receives a further subsidy when the apprentice graduates successfully. This is a classic dual-system model which has worked well for almost 80 years, but employers are losing interest in it: the number involved has halved over the past few years. The increase in the technological standard of equipment is said to mean that fewer jobs are available for juvenile workers and that they need more than the two days a week of practical training that the schools allow: this mode of training is more difficult to apply to the occupations of the future. Bureaucratic procedures and the close attention of labor inspectors are also a disincentive. In Germany, similarly, the number of in-company training places under the dual system has been falling for several years, as some of its inherent problems come to the surface.

EU8 employers' traditional expectations of VE are unreasonable.

The expectation of some EU8 employers that the public vocational school system, almost entirely funded by tax-payers,[10] should deliver to them ready-to-work, specifically-skilled recruits is not reasonable. It is generally agreed that the state should pay for public goods, which cannot be bought and sold in the market because they yield social benefits only if they are consumed by all: environmental protection and malaria eradication are the classic examples. Education is only partly a public good—it yields benefits both to the individuals who receive it and to society as a whole. And the more narrowly vocational the skills that are imparted, the stronger is the case for asking the beneficiary to pay all or some of the costs of the training. The definition of the beneficiary will depend on whether the skills in question are general or specific.[11] If the skills are general or transferable, i.e.: of use to more than one employer (for instance, welding or general computer skills), employers will be reluctant to finance such training of workers because it will make them more attractive

9. Information in this paragraph is from interviews in Warsaw in November 2005.

10. For instance, the national budget funds 97 percent of vocational schools' expenditure in Lithuania, 85 percent in Slovakia—the rest coming from sale of services (European Training Village, Thematic Overviews).

11. The originator of this distinction is Becker (1975): it is explained, clearly and briefly, in Middleton, Zidderman, and Van Adams (1993, Box 4-1).

to other employers. If the skills are "specific"—useful to only one employer (for instance, assembly or repair of a specific brand of machine), employers will be willing to finance such training. Thus individuals are often willing to pay for the acquisition of general, transferable skills, but employers would only finance such training if an incentive is offered to them, such as the ability to pay a special low "training wage," a subsidy of some kind from government, or a levy-grant scheme to reward those who train.

Even if employers' traditional expectations were accepted and the school system were to continue to try to provide them with ready-to-work recruits, the task of matching exactly the pattern of demand for narrow specific skills, at a time when that pattern is in a state of flux and uncertainty, is virtually impossible.[12] This is particularly so in a centralized system where schools are allowed to train only for a list of specified occupations.

What a school system *can* be expected to deliver to employers (and what formal employers in the "new" sectors increasingly want) is flexible and trainable recruits with broad rather than narrow skills, which will not become obsolete with changes in technology and industrial structure, and the "ability to work independently, to evaluate critically, to solve conflicts, to work in teams, and to be socially and morally competent" (Lehmann 2000). For instance, what Czech employers are looking for (in vain) from different categories of recruits, according to a recent survey, includes: language competences in the case of university graduates; language competences, computer skills and problem-solving capacities (general secondary school leavers); and language competences, computer skills, willingness to work overtime and flexible working hours, reliability, accuracy, honesty, integrity and loyalty (vocational school leavers) (Czesana and others 2004).

Box 2. Benteler, A German Manufacturing Company

Benteler, a German manufacturing company, which trains approximately 400 young people every year in a number of occupations ranging from industrial clerks to mechanics and engineers, uses four key criteria to assess the individual they would like to hire permanently: (i) Ability (knowledge); (ii) Social Interaction (teamwork); (iii) Skills application (methodology, creativity, diagnosis); (iv) Personal Skills (motivation). Only one of these is strictly knowledge based.

Interview with HR Director: June 2006

In the words of a recent World Bank overview, "although the workforce in CEE is (on average) well educated, employers have difficulty finding workers with the right skills. The problem of the skills gap and mismatch hits the most advanced reformers. . . . In countries like the Czech Republic, Hungary, Latvia and Poland, 35–40 percent of employers see the skills of the available workforce as a significant obstacle. (The proportion is even higher in Estonia.) . . . Workers need to be equipped with broad and transferable skills and provided

12. The situation is also complicated by the large size of the 'shadow economy' in these countries. Schneider (2005), using a combination of a complex, 'dynamic multiple-indicators multiple causes' model and data on currency demand, has estimated it to range from the equivalent of 20 percent of GDP in the Czech Republic to 41 percent in Latvia, compared with 8 percent in the US, 15 percent in France and 17 percent in Germany. Jobs in the shadow economy are less specialized, lower skilled on average, and links between schools and the sector are much more difficult to establish.

with life-long learning opportunities to be able to meet the challenge of a dynamic labor market and to support firms' strategic restructuring" (World Bank 2005c).

Box 3. A Warning to OECD Countries About the Need for Broad Skills

The EU8 countries are not the only ones needing to move in the direction outlined in this report. More than six years ago OECD governments were warned that, to be effective within a globalized economy, their education systems would need to teach:

- the ability to integrate formal and informal learning, declarative knowledge (or *knowing that*) and procedural knowledge (or *knowing how*),
- the ability to access, select and evaluate knowledge in an information-rich world,
- the ability to develop and apply diverse forms of intelligence,
- the ability to learn and work effectively in teams,
- the ability to create and transpose knowledge,
- the ability to cope with ambiguous situations, unpredictable problems, and unforeseen circumstances, and
- the ability to cope with multiple careers—learning how to "redesign" oneself, locate oneself in a job market, and choose and fashion the relevant education and training.

Source: Presentation by David Hargreaves, Cambridge University, to the OECD CERI Board, March 24, 2000.

Some researchers go so far as to suggest that the prevalence of narrow-skill-specific rather than general education may be a reason for slow European growth in recent years. For example, Krueger and Kumar (2002) have developed a growth model which suggests "that while European education policies that favored specialized, vocational education may have worked well during the 60s and 70s when technologies were more stable, they may have contributed to slow growth and increased the European growth gap relative to the US during the information age of the 80s and 90s when new technologies emerged at a more rapid pace." They refer, quoting from the *European Competitiveness Report 2001*, to the "growing consensus that the strong growth and productivity performance in the US is related to increased investment and diffusion of ICT goods and services," which "has raised concerns that the weaker economic performance of EU Member States is caused by sluggishness in the adoption of these new technologies. . . . . In recent years skill shortages in important technology areas have been reported in several European countries. . . . . It appears that. . . . . the surge in demand for ICT-related skills in the 1990s found no corresponding supply forthcoming."

In line with this analysis are the increasing criticisms of the German dual system for early selection and rigid channeling of young people into separate academic and vocational career tracks, which holds back the transition from a manufacturing-based economy to an information and service-based economy, and lack of progress in developing programs for the new occupations (R&D, IT, and so forth).[13]

13. The Economist, February, 11th, 2006, Review of Germany: "the country needs to rethink its entire educational system to produce enough brains for its economy to prosper," and also the Lisbon Council Policy Brief.

Box 4. Germany's Dual System*

Germany's dual system provides the education of choice for a large proportion of young people, between the ages of 16 and 22, because it offers good job prospects in a country which currently suffers from 10% unemployment. Generous training wages, averaging at least Euro 650 a month in 2006, also add to the popularity of the system. Learning takes place in vocational schools (the *Berufsschule)* for one or two days a week. The rest of the week is spent training and working in companies. Currently, about 340 professions or occupations are recognized by the German state, ranging from training for engineering or constructions crafts to service sector jobs such as banking or offices skills. Courses are not modularized but depend on the amount of time spent in training (an average of between 35 and 37 months) rather than on competency achieved. Final oral, written and practical examinations are administered by boards consisting of experts commissioned, in most cases, by local Chambers of Commerce or Crafts Chambers.

In 1999, 23.% of Germany's companies offered training places. The larger a company, the more likely it is to be part of the dual system: 93.% of companies with more than 500 employees, 70% of companies with between 50 and 499 employees and 47% of companies with 10 to 49 employees offered training places. Many small companies are unsuited for training, either because their business is highly specialized or for other reasons.

A notable feature of this system is how much German companies are prepared to invest in training to get employees who have the right mix of skills and attitudes to work. In 2000, the net cost to companies for one training place was estimated on average as Euro 8,700, per annum, including both trainee wages, employers' contributions to social insurance and other expenditures. In spite of its costly nature, companies regard their sponsorship of in-house training as a long term investment. Employers greatly value problem solving and teamwork. Trainees are future employees with the desired skills and work habits. Companies are enabled to secure their future labor pool, can "cream" the best trainees, and can avoid making wrong hiring decisions which prove costly to undo. There is also a pride in having a reputation for training and contributing to society.

It is very difficult to estimate the total overall costs of vocational education in Germany. This is due, inter alia, to the complex distribution of responsibilities between the private sector (training companies, Chambers and trainees) and the public sector (Federal and *Länder* ministries responsible for education, labor and the economy, publicly-financed research institutes and employment services). In 2000/2001, some 7.9% of the Euro 92 billion (4.1% of GDP) was spent on vocational education in the dual system. Of these costs, two thirds or 67.5% was contributed by companies; 15.5% by the Federal and Lander (State) Government and 17% by the Federal employment Services. In addition, the *Länder* paid an additional Euro 3.3 billion for vocational training in full time vocational schools- the *Berufsfachschule*—which are attended by students who cannot find training places in company or who decide on a school-based route into employment or into further and higher education. However, these vocational schools have the same problems as vocational schools around the world in that they need expensive equipment constantly renewed to keep up to industry standards and face the same issues of in service teacher training to ensure relevance of skills taught to the world of work.

In spite of its long history and proud tradition of training to a high level of quality, in 2006, the dual system is increasingly coming under pressure. High unemployment in traditional sectors of the economy (which are themselves declining) has led to a reduction in training places offered by employers. Increasingly, questions are being raised about the flexibility of the system to respond to the pressures of the global labor market. German employers have noted that their employees in Hungary and especially in the Czech Republic are doing just as good a job without so many years of rigidly organized training. Federal policy makers would like to review both the content and number of the training orders for occupations. The take up of access to higher education from the dual system is rather disappointing. And there is a worry that early vocational choices restrict individual and economic growth. Finally, the

(*continued*)

Box 4. Germany's Dual System* (*Continued*)

provision of vocational education in both the dual system and in the full time vocational schools is costly and potentially unsustainable.

For these reasons and because companies in post socialist systems tend to be quite small, the dual system is not applicable in its entirety to the conditions in the new member countries of the EU. However, some positive features of Germany's vocational education system could be adapted for other countries, most notably the strong involvement of employers in the provision of training which ensures labor market relevance. In addition, it also provides equitable access for those who are socially disadvantaged. Moreover, competition for places and the historical respect accorded to the dual system, have meant that vocational education does not carry the stigma of academic failure associated with VE in EU8 countries and in many OECD countries.

*A full description of the dual system may be found in: BMBF (2003): *Germany's Vocational Education at a Glance,* in: http://www.bmbf.de/pub/germanys_vocational_education_at_a_glance.pdf

Traditional VE was the traditional answer to the question, "What to do with those who have performed less well in basic education?" but this answer no longer convinces.
The formerly planned economies are not the only ones that have used vocational education as a repository for those who performed less well in basic education: it was a common solution throughout Europe and elsewhere. It was assumed that such children had reached the limits of their academic absorptive capacity by their early teens. That assumption has been increasingly questioned: the benefits of avoiding premature allocation of students to academic and vocational streams are acknowledged, particularly since a sizeable proportion of those classified in this way tends to include students from disadvantaged backgrounds with unrecognized potential.

OECD's PISA studies, as discussed in the March 2006 Lisbon Council Policy Brief [14–15] show that "overall variation in student performance and performance differences between schools tend to be greater in countries with rigid selection practices at an early age between types of program and school." They also show that the effects of social clustering are larger in school systems with differentiated types of schools than in systems in which the curriculum does not vary significantly between schools, giving as an example the German system which "divides kids as young as 10 years old into vocational or academic tracks" (streams). The German system is also increasingly criticized for institutionalization of a "glass ceiling" for its graduates who rarely make it into managerial jobs (Lehmann 2000). On the basis of PISA results and other international evidence, Mertaugh and Hanushek (2005) suggest that it may be time "to move away from the dual system and its dichotomous distinction between academic and vocational education, and to move instead toward a more integrated approach to secondary education." Moreover, there is evidence that the inequities that begin in initial and lower secondary education are perpetuated in post school education and training where those who have not completed upper secondary education and those with low-skilled jobs continue to be accorded the fewest opportunities for life long learning (Schleicher 2006).

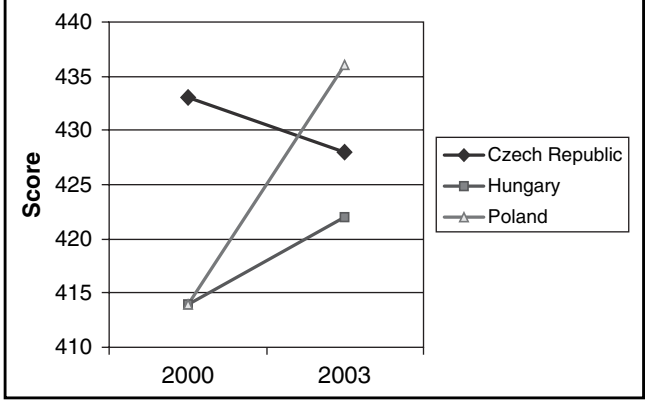
A similar conclusion can be drawn from the results achieved by Polish 15-year-olds in the OECD PISA tests of reading literacy in 2000 and 2003. Reading literacy, defined

as "the ability to understand, use and reflect on written texts in order to achieve one's goals, to develop one's knowledge and potential, and to participate effectively in society" (OECD 2001) is a key to labor-market success. The OECD International Adult Literacy Survey (OECD and Statistics Canada 2000) found that people with higher levels of reading literacy are more likely to be employed and to have higher average salaries than those with lower levels. Moreover, reading literacy levels can help to predict how well people will do in the labor market *over and above* what can be predicted from their educational qualifications alone. Among 26–35-year-olds working in the business sector in all countries covered by the IALS in 1994–98 the probability of working in a white-collar, highly skilled job rises rapidly with an increase in reading literacy skills (OECD 2001).

As Figure 15 shows, the bottom 25th percentile of Polish students achieved an increase in score of more than 5 percent between 2000 and 2003, significantly better than their counterparts in the other Central European countries in the sample. All three countries had pressed ahead with reforms of basic education between the two tests, but Poland was the only one to have lengthened the period of basic education in the interim. Polish 15-year-olds who took the tests in 2000 had already been separated into general schools (for the successful) and vocational schools (for the failures). Almost all who took the tests in 2003 were in the final year of a shared lower secondary education. The unexpected improvement in the scores of bottom 25 percent may have many explanations but is at least consistent with the hypothesis that they benefited from not having been segregated.

Contrary to some claims, there is no evidence that devocationalization of upper secondary education increases the proportion of young people who leave school early (and vice versa). As Figure 16 shows, the EU8 countries have a lower incidence of early school leaving (ESL) than do most other EU members. However, in six of the eight countries, a significant fall in the proportion of upper secondary students in vocational schools (see Figure below) has been accompanied in recent years by a fall in the percentage of 18–24 year olds classified as early school leavers. Among 16 other EU members for which data are available, all 6 of those which devocationalized saw falls in the incidence of ESL over this period. Of the 10 which increased the share of vocational students in upper secondary enrollment, 7 saw an improvement in the ESL situation and 3 did not.

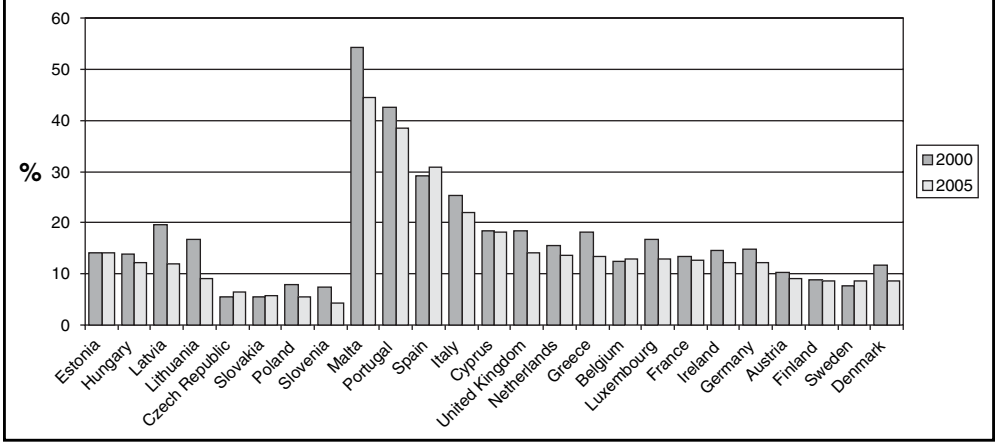
Figure 15. PISA Scores in Reading Literacy Achieved by the Bottom 25th Percentile of 15-Year-Olds in Czech Republic, Hungary, and Poland



Source: OECD PISA website.

There are also social costs in confining those with poorer examination results in separate lower-status institutions. Several governments recognize this problem and try to deal

Figure 16. Early School Leavers as a Percent of 18–24 Age Group, EU Members, 2000 & 2005



Note: Early school leavers are defined as those 18–24 year olds with at most lower secondary education and not in further education and training. The earlier year for Poland and Slovenia is 2001, for Latvia, Czech Republic, Slovakia and Ireland 2002. The later year for Germany is 2004
Source: Eurostat.

with it by special measures: for example, instructors of vocational training at secondary vocational schools in Slovakia can take courses (specifically designed for vocational schools) in such topics as "prevention of racism in the context of secondary vocational schools" and "training of tolerance and elimination of prejudice in the context of educational groups in secondary vocational schools" (Government of Slovakia 2003). This is admirable, but it is difficult to escape the impression that some of the social-cohesion benefits of education as a public good are being sacrificed by segregating some of the system's losers in this way.

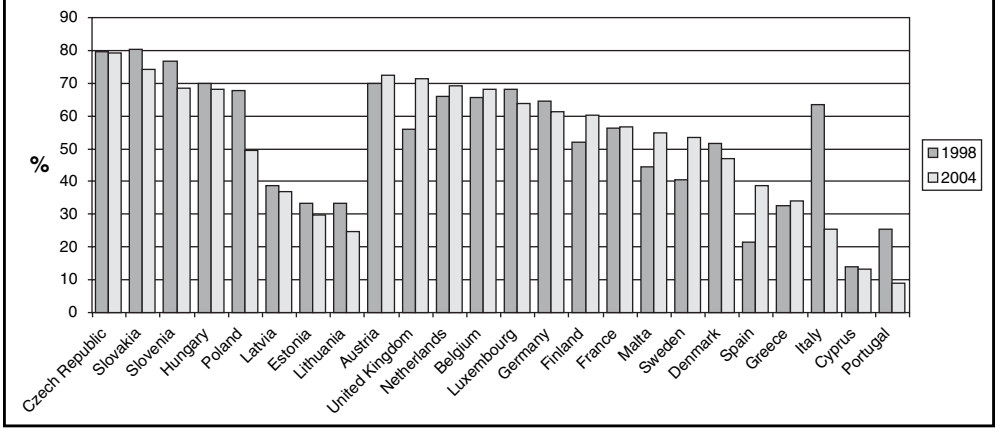
Parents and students are showing an increasing preference for GE over VE

Meanwhile, parents and students are voting with their feet. Over the whole period since 1990 the share of VE in total secondary enrollment has fallen significantly in all EU8 countries except the Czech Republic, and the fall has been particularly steep in Lithuania, Latvia and Poland (UNICEF TransMONEE database). Since 1998, as Figure 17 shows, these trends have continued, and half the countries had less than half of their upper secondary students in vocational schools by 2004. This is in apparent contrast to trends in the EU-15, where Austria, the UK, Belgium, Finland, France, Malta, Sweden, Spain and Greece increased the proportion in vocational education over this period.[14]

At the same time, as Figure 18 shows, enrollment rates in higher education have soared. The pace of expansion has been particularly fast in Hungary, Poland, Slovenia and Latvia, and in all EU8 countries except Slovakia and the Czech Republic the num-

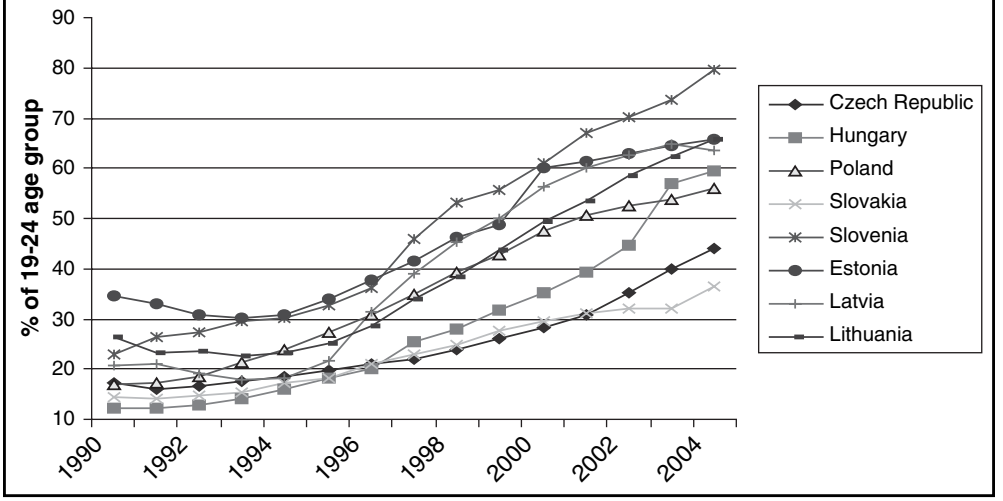
14. However, differences in definition probably mean that the contrast is more apparent than real: for example, the UK has introduced vocational subjects into school curricula since 2001 (reflected in Figure 17), but schools there can hardly be can hardly be put in the same category as the EU8's vocational schools.

Figure 17. Students in VE as a Percent of All Upper Secondary Students, EU Members, 1998 & 2004



Note: Hungarian figures have been adjusted from national source for comparability with other countries.
Source: Eurostat.

Figure 18. Gross Enrollment Rates, Higher Education, EU8 Countries, 1990–2004



Source: TransMONEE database.

ber of students in higher education is equivalent to more than half of the 19–24 age group.[15]

The increasing preference for GE over VE is only partly a response to the immediate labor-market outcomes of the two types of secondary education, explored in section C above. It seems likely that the higher rewards available to higher education graduates exert a bigger influence on personal educational investment decisions at this level. In Poland,

15. For further discussion of the fiscal implications of the higher education boom see World Bank (2006).

Box 5. Eurobarometer Survey Confirms Most EU8 Citizens Would Recommend GE Over VE

Skepticism about VE in most EU8 countries is illustrated by the results of the Eurobarometer survey on vocational training carried out in autumn 2004. In Poland, Lithuania, the Czech Republic, Latvia, Slovakia and Slovenia, the percentage of respondents who would recommend general or academic studies to a young person finishing compulsory or secondary education far exceeded that in favor of vocational training or apprenticeship. The only exceptions, significantly, were two countries that have implemented effective reforms of VE—Hungary and Estonia. In contrast, the balance of opinion was in favor of vocational education and training in all EU-15 countries except Portugal, Sweden, Luxembourg, Belgium, Denmark and (interestingly) Germany.

Source: CEDEFOP (2006).

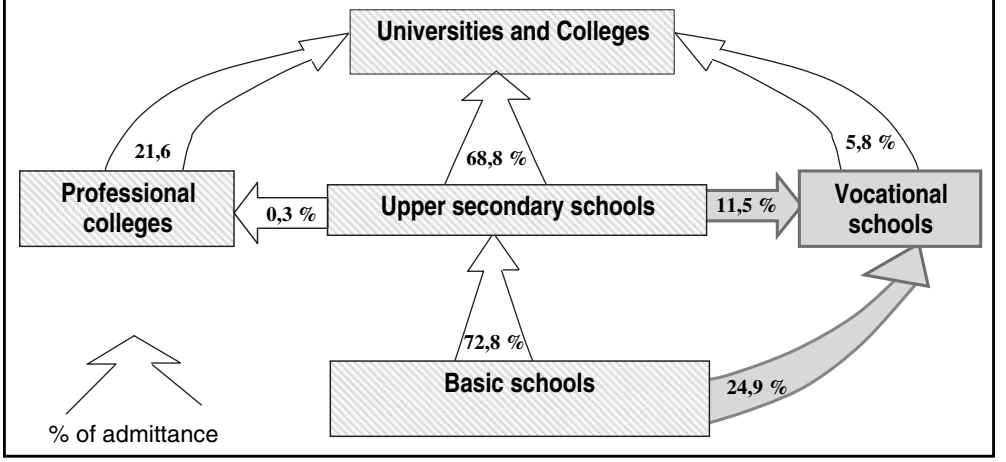
Slovakia and Lithuania, higher education graduates can expect much lower unemployment rates and much higher earnings than leavers from either type of secondary school. In Lithuania young male graduates are earning more than twice as much as vocational school leavers: for females the premium is 75 percent (Figure 13). Higher education is also a way of delaying entry to the labor market for students from families which can afford its costs.

With enrollment rates in higher education above 50 percent in most EU8 countries (Figure 18), it has a powerful backwash effect on aspirations further down the education system—to the detriment of VE enrollment rates. Vocational school leavers nowadays encounter fewer blockages to their upward progression in the education system than they used to: in most EU8 countries, one generally available pathway leads to a vocational qualification (ISCED 3A) and a general diploma, while the wholly vocational qualification (ISCED 3B or C) is rapidly disappearing.[16] But "this often requires a longer period of study or additional studies after having obtained a vocational qualification" (Leney 2004: 85). Grades in the general subjects needed to progress are lower in vocational schools than they would be if students had more time to study them. The easier route to access to higher education is still through GE, as parents and students know. For instance, in Lithuania, as Figure 19 shows, 73 percent of basic school leavers go to general upper secondary schools, which account for 69 percent of the intake into higher education: vocational schools in contrast take 25 percent of basic school and 12 percent of general secondary school leavers, but account for less than 6 percent of intake into universities and colleges.

And in Poland in 2005, in comparison with general lyceums, a smaller proportion of students in the new profiled lyceums took the Matura examinations (which are needed for access to higher education), a higher proportion failed, and their average results were lower (Figures 20 and 21).

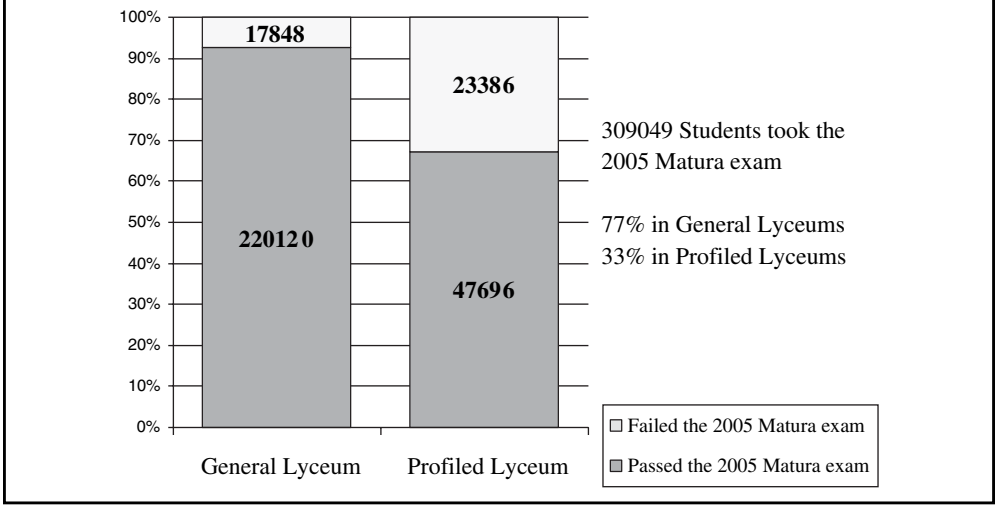
16. Apprenticeship pathways remain an exception to this trend.

Figure 19. Flows Between Educational Institutions, Lithuania, 2003



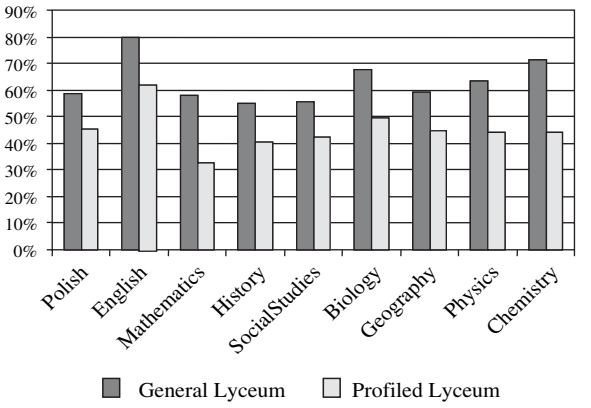
Source: Ministry of Education and Science, Lithuania.

Figure 20. Matura 2005 Results in General and Profiled Lyceums



Source: Centralna Komisja Egzaminacyjna. Matura 2005 presentation, www.cke.edu.pl

Figure 21. Matura 2005 Subject Results in General and Profiled Lyceums
(results of the basic level exams)



Source: Centralna Komisja Egzaminacyjna. www.cke.edu.pl

Box 6. Even in Finland There are Problems

A thematic review of equity in education in Finland by an OECD team found that 'students at the end of grade 9 have a "choice" between a high-status general option providing a variety of subjects and permitting realistic access to both university and polytechnics, and a low-status option with few prospects for tertiary education, mediocre employment prospects, and highly limited curriculum. . . . . It was clear to us that vocational education is indeed low status in the eyes of prospective students: one group of students said it was for "dummies," and another claimed that it was for "lazy people"; another student said that "everyone who goes there will become a car repairer." Vocational education suffers from another problem: students who choose that route must choose a specific occupational area. Many students said that they were simply not ready to make an occupational choice, and for this reason alone would opt for general upper secondary. While it is possible to change the occupation after starting, this may delay graduation. All in all, the mediocre prospects of vocational education, and the difficulty of choosing an occupation at such an early age, make it a distinctly second-class form of schooling.'

Source: OECD (2005).

CHAPTER 5

Some Principles for Further Reform

It is not the purpose of this report to set out a "one-size-fits-all" detailed program for continued reform of initial VE in the EU8 countries. However, it is possible to derive from the five propositions discussed above a number of principles or policy options that could inform such a program, to the benefit of fiscal efficiency.

Do not try to re-create the old model

As the discussion (Box 4) of the costs of German vocational schools in 2006 makes clear, it would not make sense to use public money to try to restore the equipment and teaching staff of vocational schools to the standard needed for them to achieve their traditional objective (of providing ready-to-work recruits with specialized skills for the economy's enterprises) in a volatile high-technology world. Even if this involved the creation of Practical Training Centers serving a number of schools in a locality, it would be prohibitively expensive.

Close or merge non-viable schools

A formula funding system, under which the amount of public money allocated to a school depends primarily on the number of students, would draw attention to schools which are not viable,[17] particularly if it is combined with school autonomy.[18] Lithuania has introduced a "money-follows-the-student system" for vocational schools, and is experimenting with a change in status of eight such schools from budget institutions to

17. Not viable in the sense that the costs of closure (transportation for students, redundancy payments for staff, and so forth) are lower than the costs of continued operation.

18. The system already operates in a number of EU8 countries.

public (non-government, non-profit) institutions: this enables them to involve social partners in their ownership as well as management and to achieve true autonomy (Pūslienė 2006). Whatever the funding mechanism and governance model, non-viable vocational schools should be closed or merged. For example, Warsaw City Council uses a rule of thumb that any upper secondary school that wants to remain open should have two classes (each of 32 students) in the same grade.

Use need as the criterion for subsidies

Scholarships or stipends, at present awarded to pupils in vocational schools in many EU8 countries, should be awarded (if at all) on the criterion of need rather than the type of school attended. Additionally or alternatively, in a formula funding system, the formula could give higher allocations to schools for disadvantaged students as an incentive for them to recruit them actively, retain and pay particular attention to them.

Make all practical training in-plant

Schools should only be involved in apprenticeship programs if all the practical training is in-plant, and preferably funded at least partly by employers (see Principle 9 below). If employers cannot be persuaded to participate in this way, the apprenticeship model cannot work and would have to be dropped.

Explore alternative sources of funding, but cautiously

VET schools in the EU8 countries supplement the funds obtained from the state by raising their own resources—from sales of their products or services, training courses for adults or renting out premises. ETF (2005) estimates that income from such sources represents roughly 10 percent of the total funds available to VE schools, with a range from 5 percent in Lithuania to 15 percent in Latvia. Care has to be taken to ensure that fund-raising does not clash with the wider purpose of a school. For example, schools can be drawn into (unfair because subsidized) competition with employers who should be their partners. They can also be tempted into concentrating on low-technology but "saleable" options (such as making furniture, hairdressing and garment manufacture) and losing sight of their training rather than their production role. And, because resources used in most such activities have to be paid for, their contribution to cross-subsidization of the schools' main function is much smaller than appears from their share of income.

Encourage the growth of private training institutions

Provision of just-in-time vocational training by private institutions can be expected to help to fill the skills gap. For example, privately owned training institutions are responding to new demands for specific skills in Western Europe and could do the same in response to increases in domestic demand. Even at the time of accession, 64 percent of Poland's post-secondary VET schools were private (ETF 2005).

Reform higher education financing

The backwash effect of higher education expansion on parents' and students' preferences for tracks that ease upward progression in the education system could be reduced by reform of higher education financing: a combination of tuition fees, loans and need-based grants

would reduce both the private rate of return on higher education and the attractions of tracks that lead to it.[19]

Move increasingly towards post-secondary VET

If education is regarded as a public good, the logical place for specialist and relevant vocational training is *after* the completion of a high-quality secondary education. This is effectively already the medium-term aim of policy in several EU8 countries or regions within countries. In Warsaw, for instance, it is thought likely that VE will become post-secondary, providing opportunities in particular for those who have failed the examination for entry to higher education. The aim within upper secondary education would then be to ensure that it imparts key competences and new skills (see proposition 6 above) to as many of its graduates as possible—to the benefit of learning and labor market outcomes and international competitiveness.

Integrate rather than separate, and take equity seriously

The question of "what to do with those who have performed less well in basic education?" should be addressed imaginatively. They should at least be given the opportunity to achieve their potential within a reformed upper secondary system, rather than being consigned prematurely to a separate "low road." A minimum requirement for this purpose is that all upper secondary students should be in the same type of school. In Norway, for instance, while the vocational/general distinction has been preserved, many students at this level attend comprehensive schools, with connecting routes between the two strands within each school, designed to mitigate the impact of a wrong choice by a student (OECD 2004). Resources also need to be devoted to monitoring and responding to the problems of students in trouble. In Sweden, which also has comprehensive schools, remedial teaching is available to vocational-track students who are having difficulty with academic subjects (especially Swedish, English and mathematics; OECD 2005a). Finland has an excellent system of interventions when students fall behind in lower secondary schools (before they are separated into streams), involving: the teacher, responsible for identifying and working with such students; a special assistant, supporting the teacher in this task; a specialist learning-problems teacher, working with students who need additional help; and a multi-disciplinary team (including a psychologist, a social worker etc.) for students whose weak progress is associated with wider home or social problems. The OECD team recommended that this system should be extended at least to upper secondary education (OECD 2005). It is certainly a model for consideration at this level in other countries. While expensive, it is probably a cheaper and more effective way of promoting equity than channeling weaker students into separate, high-cost, narrow-skill vocational schools.

One element in any program of broad-skill development for less academically inclined upper secondary students will be information and communications technologies (ICTs)—not only as a subject for study but also as a medium for teaching and learning other subjects. This will involve improvement in access to ICTs in schools, libraries and learning centers with an emphasis on children and schools in poor neighborhoods, and improvement in the ICT skills of teachers (OECD 2004a).

19. See World Bank (2006) for a detailed discussion of reform of higher education financing in the EU8 countries.

Transfer more of the cost of post-secondary training to beneficiaries

If vocational training is to become increasingly post-secondary, ways of transferring more of the cost of such training to beneficiaries need to be explored. In such a model the role of employers in providing and financing skills training for new recruits and existing employees becomes more important, as does that of private training institutions charging fees to individual students. For this to work, a way has to be found to deal with a special kind of market failure—training systems failure. Young workers and job-seekers do not know which are the most profitable skills to acquire, and, even if they did, could not find anyone to lend them money to finance their acquisition. Employers who spend money on training their workforce see all except a small category of specific, non-transferable, skilled workers poached by other employers who do no training. So young individuals (and particularly those at a disadvantage) refuse to sacrifice now in order to gain later, and employers take the "free-rider" route, hoping that other employers will develop a pool of skills that they can tap. As a result, the level of training is socially sub-optimal.

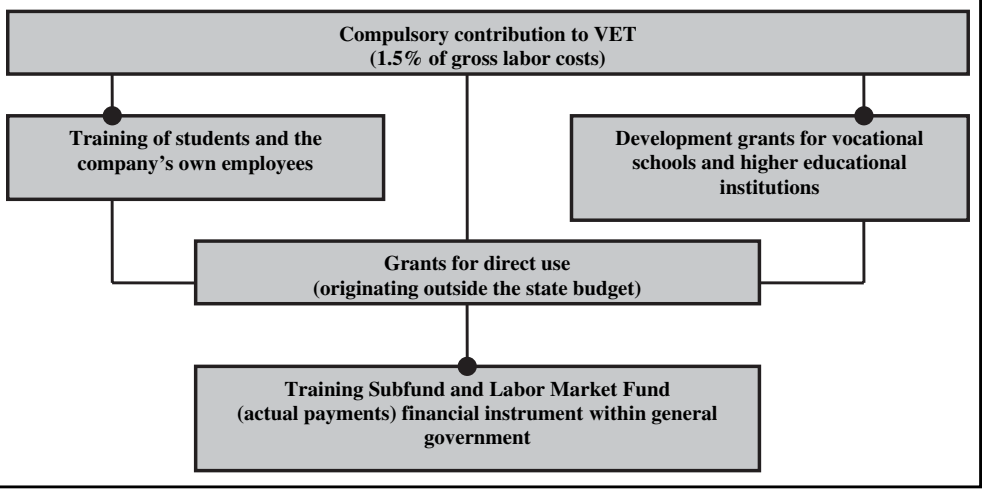
The Sector Council Program jointly run by the Government of Canada and Industry Sector Councils is a promising approach to the issue of how to involve employers in anticipating skills shortages and in the provision of workplace training.[20] Instead of each company training its own workforce, Sector Councils, as permanent representatives of particular industries, through collaboration and collective action on skills issues, promote economies of scale in addressing human resources challenges which benefit all industry partners. The Government of Canada supports these initiatives as a facilitator, helping these groups come together and take ownership of their human resources issues. Resources to run this program come from employers. Because they receive practical and relevant on-the-job training, workers become both more adaptable and mobile. Businesses benefit because their training needs are fully met thus increasing their competitiveness in a knowledge-based economy. And learning institutions are enabled to develop more responsive curricula and thus expand their enrolments.

Another way of dealing with the problem of employer involvement in training (implemented in Estonia, Lithuania and the Czech Republic among the EU8 countries) is to allow employers to deduct training costs from their taxable income. However, this still involves a cost to the taxpayer. A more elegant way of providing incentives to employers to pay for training in transferable as well as specific skills, at no cost to the taxpayer, would be a national training system based on a levy/grant principle. For instance, as already mentioned, in Hungary a levy on enterprises, equivalent to 11/2 percent of their wage costs, finances a fund for development and training. A large part of this fund is available to vocational schools, but up to one third can be spent by companies on training their own employees (ETF 2005, Annex 10). Companies can transfer finances directly to vocational schools, can finance the training of their own employees, and can provide practical training for students. A department for the management of the Fund within the Ministry of Education administers the national contribution of the fund to vocational education and training.

It is important to distinguish a levy/grant scheme from a mere payroll tax (the bane of fiscal reformers in EU8 countries). The point of such a scheme is to internalize externalities by refunding the costs of training to those who train. Ideally, the scheme should be admin-

20. http://www.sdc.gc.ca/en/hip/hrp/corporate/init_sector.shtml

Figure 22. The Vocational Training Contributions System in Hungary[21]



istered and the fund held by employers rather than government (though with prudential regulations to ensure that those who say they are training are actually doing so). In countries, like many in the EU8, with a large number of small and micro enterprises, all firms above a very small size would pay the levy but training would probably be concentrated in the larger firms. Smaller firms would poach skilled workers from larger firms as now, but would pay for this privilege, and larger firms would happily accept it as they would be compensated for the cost of training.

Box 7. Singapore's Skills Development Fund

An example of a levy/grant system in successful action is that of Singapore, where employers are required to contribute 1 percent of the gross salary of all employees earning less than S$1,500 per month to a Skills Development Fund. They can recoup 80 percent of their contribution by claiming training grants. Enterprises that provide training in skills that can be shown to be in demand, or have training plans that cover more than half of their workforce, are provided with higher sums, while companies that continue to use low-skilled workers in low-cost operations are penalized. By 1990, around 30 percent of the country's workforce had undergone some kind of training under this system, and the average expenditure by enterprises on training was about 2.4 percent of total payroll costs. By 1996, about a third of the workforce was receiving training, expenditure on which was equivalent to 3.6 percent of payroll costs.

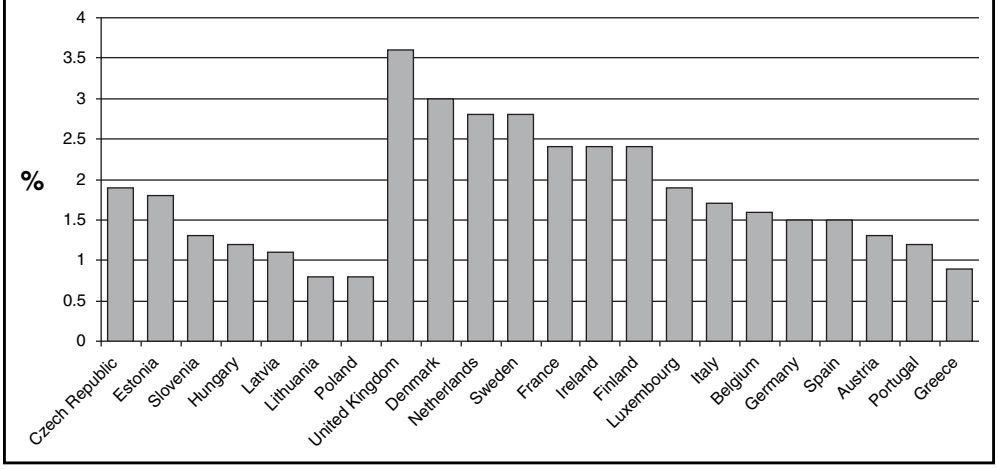
Source: Kuruvilla, Erickson, and Wang (2002).

A survey of continuous vocational training (CVT) in enterprises in EU member countries is currently under way. Meanwhile, the most recent information on this subject is for 1999, shown in Figure 23. At that time enterprises in EU8 countries were spending considerably

21. Ministry of Education, Vocational Training and Education in Hungary. 2005. pp 18–21.

less on average, as a percentage of their labor costs, on CVT than were their counterparts in the EU-15. In this respect they were comparable to countries like Germany and Austria which put more emphasis on initial VET. The examples of the UK, Denmark, the Netherlands and Sweden illustrate the availability of an alternative model in which enterprises spend a large proportion of their labor costs on continuous vocational training of their employee.

Figure 23. Costs of CVT Courses, EU Members, 1999
(as a Percent of Total Labor Costs of All Enterprises)



Source: Eurostat.

The development of institutions to finance individual acquisition of transferable skills, without insistence on immediate collateral would also help. Most of the world's loan schemes are aimed at higher education students but, in principle, they could be made available to students at any level and to employees. One country which aims its loan scheme at disadvantaged students, enrolled in upper secondary general and vocational schooling as well as tertiary education, in both the public and the private sector, is Thailand. The scheme covers about a quarter of students in upper secondary schooling. A lesson from the operation of the scheme is that borrower selection needs to be transparent, probably centralized rather than left to individual educational institutions, and carefully targeted (Ziderman 2004). Whether or not loans are available for this purpose, individuals could be allowed to deduct the costs of being trained from their taxable income (as they are in Estonia, Hungary, Poland and the Czech Republic among the EU8).

Transferring more of the cost of post-school training to beneficiaries makes particular sense in the situation of high emigration of skilled workers described earlier (in which, for instance, the number of Lithuanians registering for work in Ireland between May 2004 and February 2006 was equivalent to 1 percent of the sending country's population). There is no reason why taxpayers should be entirely responsible for subsidizing the acquisition of skills that will be used abroad.

Some subsidies would still be necessary, however. They should be confined, as far as possible, to individuals who need them. A post-secondary national training system should certainly have a pro-disadvantaged bias: for example, training vouchers can be given to designated categories (unemployed, people from low-income backgrounds, the disabled, etc.) to be cashed in by training providers of their choice. In addition, active labor market programs to train or re-train the unemployed would be needed, but should be carefully monitored for their impact in relation to their cost.

The implications for fiscal efficiency of reforming vocational education in line with these principles will vary from country to country. As far as savings are concerned, they will depend primarily on the importance of VE expenditure in the budget and GDP and on the difference in unit cost between VE and GE. In the Czech Republic, for instance, VE expenditure takes quite a large share of GDP but is not much more expensive per student than GE; in Lithuania, its weight in expenditure is small but the unit cost difference is large (Table 7).

Table 7. Upper Secondary Vocational Education, Czech Republic and Lithuania (expenditure as percent of GDP and difference in unit cost from upper secondary general education)

	Upper 2ndary VE exp as % GDP	Unit Cost Difference VE/GE
Czech Republic	0.96%	16%
Lithuania	0.23%	61%

Source: Table 4 and Figure 5 above.

If all upper secondary VE students were suddenly absorbed into GE schools at the same unit cost as exists in those schools, the potential savings in public expenditure (given the figures in Table 7) would be only 0.09 percent of GDP in Lithuania and 0.13 percent in the Czech Republic. However, other factors would affect the scale of such savings:

- some upper secondary GE schools could absorb more students without a commensurate increase in expenditure, through increases in staff/student ratios, more efficient use of space, and so forth;
- if students are not acquiring narrow vocational skills in school, they will need to acquire them in some other way (see Principle 8), which may involve public expenditure or may be beneficiary-financed (see Principle 10);
- the extra costs of preventing the less academically inclined students from falling behind in integrated upper secondary schools would need to be taken into account (see Principle 9);
- if narrow-skill vocational training became entirely post-secondary, the cost of the extra years in upper secondary school for those who would have otherwise have dropped out would have to be taken into account—although the drive towards universal upper secondary education is on the agenda whatever happens to its content.

In any case, the main concern is with fiscal efficiency rather than savings alone. If (as is likely) net savings resulted from implementation of the principles outlined in this section, they should be re-deployed within the education sector to ensure that the benefits of the new model are realized. These benefits include the acquisition by upper secondary school graduates of broad rather than narrow skills that will have an impact on their employability throughout their working life rather than merely in their transition to their first job—skills that will not quickly become obsolete with changes in technology and industrial structure but will enable them to meet the occasional upheavals of the globalized labor market through lifelong learning. The social benefits of including young people of varying aptitudes in the same type of upper secondary school instead of excluding those considered to be less academic, while difficult to quantify, should also be taken into account.

CHAPTER 6

Conclusion

The direction implied by the propositions and principles set out in this report is that of *convergence between general and vocational education.* As a recent World Bank study of new agenda for secondary education put it:

> curriculum-based reform of secondary education in the 21st century is prioritizing skills and competencies that go beyond and cut across the traditional general-vocational divide. The frontier between general and vocational curricula is shifting and fading, and the heretofore hard-to-strike balance between vocational and general education is becoming increasingly irrelevant (World Bank 2005b).

Convergence implies a need for reform of general just as much as vocational secondary education.[22] Teaching and learning strategies in general as well as vocational education need to shift from those which generate the old skills (applying knowledge acquired by rote using invariant sources of information, working as a "solo practitioner," and operating in routine unchanging ways; Kerr 2002) to those which generate the new skills needed for global competitiveness. A number of reforms in financing and management of secondary education, both general and vocational, are also needed, including a redefinition of the roles of central Ministries of Education and local governments, and improvements in the formulae for allocating public funds to schools. Further convergence along the lines discussed in this report would facilitate a unified strategy for reform of upper secondary education as a whole, instead of leaving vocational education as a separate, unsolved problem to be dealt with later if at all. "The convergence of the theoretical and the practical, and of the general and the vocational, would provide students in the compulsory and post compulsory school years with greater

22. See Mertaugh and Hanushek (2005) for a more detailed discussion.

possibilities for taking advantage of the full range of educational and job opportunities" (World Bank 2005b).

As described in Chapter 2, this is the direction in which several EU8 countries are already traveling. Hungary, in particular, has moved even farther along this road and has begun classifying its vocational and secondary vocational schools as general schools, in its returns to EUROSTAT. Poland's profiled lyceums were intended to be a step in this direction. All are preparing plans, in line with the EU's Lisbon Process, Copenhagen Declaration and Maastricht Communiqué, for a more flexible VE system, with scope for upward progression and with emphasis on core competences. The potential gains in fiscal efficiency from moving faster towards convergence should ensure that this process continues.

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