

How Vocational and General Education Affect the Labor-Market Life-Cycle

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Education programs that focus on job-specific skills facilitate the school-to-work transition. But in dynamically changing economies, specific skills may rapidly become obsolete. Education programs focused on general skills and competences transcending specific occupations may prepare workers better to adapt to changing environments. This creates a basic trade-off over the life-cycle: vocationally educated individuals have early employment advantages over generally educated individuals, but this pattern reverses later in life. This dynamic trade-off has important policy implications for education systems in how best to prepare students for a lifetime of work.

With economies changing rapidly through globalization and digital transformation, workers around the world are becoming increasingly concerned about their continued chances of successfully participating in the future labor market. With current jobs slipping away and new jobs emerging, they wonder whether they are able to adjust to continuously changing economic conditions. Recent research emphasizes that this adaptability is closely related to the extent to which education systems convey general skills and competences or rather vocational skills that prepare for specific types of work.

THE BASIC TRADE-OFF OF GENERAL AND VOCATIONAL EDUCATION OVER THE LIFE-CYCLE

The defining criterion of vocational skills is that they are required only in specific occupations, while that of general skills and competences is that their usage transcends specific occupations. In this sense, general education include any skills and competences that prove useful over a broad range of occupations, such as basic literacy, numeracy, and science skills, but also social and personal skills and transversal skills such as creativity, problem solving, and critical thinking in general.

Vocational education programs have the advantage of helping young people master the transition from school to work because job-specific skills directly

prepare students for the tasks demanded by firms. As a consequence, they may result in reduced youth unemployment.

But there is another side to the same coin: job-specific skills are subject to an increasing risk of becoming obsolete when the structure of occupations changes. In addition, if the acquired general skill base is limited, vocationally educated people may find it hard to learn different job-specific skills. By contrast, the skills and competences generated by general education programs may provide workers with greater adaptability to changing environments. Thus, they may result in higher employment opportunities at older ages.

As a consequence, if economies change dynamically, there is a basic trade-off between vocational and general education programs for labor-market experiences over the life-cycle.

EMPIRICAL EVIDENCE

An increasing body of empirical evidence confirms this trade-off. While vocationally educated individuals initially have better employment opportunities than generally educated individuals, this pattern reverses later in life (see Figure overleaf). This result was first shown for the mid-1990s with data from the IALS international adult skills survey. The same pattern was replicated with the more recent PIAAC international

data. In addition, country-specific studies from Austria, Germany, the Netherlands, Sweden, Switzerland, and the United Kingdom confirm the changing effects of general and vocational education over the life-cycle. Because individuals who enter vocational education programs may have different basic skill profiles on average than those entering general education programs, this research ensures that results are not driven by such underlying differences between people in the two types of education programs.

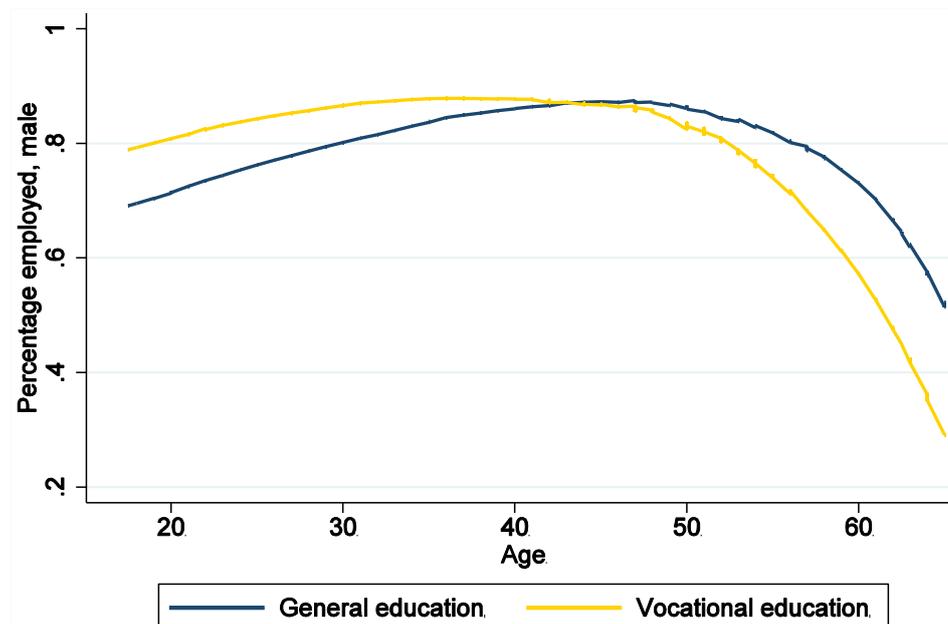
The international comparisons indicate that results are particularly strong in countries with extensive apprenticeship systems. Beyond employment, the trade-off between education types over the life-cycle is also visible in earnings and in participation in adult learning.

IMPLICATIONS FOR EDUCATION PROGRAMS

The consistent evidence on a life-cycle trade-off of focusing education programs on job-specific or general skills provides a sound basis for identifying how education systems can best prepare students for lifetime work. At the most basic level, the findings indicate that in dynamic economies, policy needs to consider the full working life-cycle, which also implies that education programs must nurture the ability to adapt to changing economic conditions.

Each country should aim to find the right balance between teaching general and work-specific skills to its population. Successful apprenticeship systems require institutional and regulatory frameworks defining the tasks of stakeholders, financial structures,

Employment over the life-cycle with vocational and general education



Source: Hampf and Woessmann based on PIAAC data; see reference for details.

and certification requirements. To make graduates fit for employment throughout their lives, apprenticeship programs could reduce the early specialization of apprentices by lowering the number of specific apprenticeships, expanding the share of general educational content, and making apprenticeship components modular.

On the other hand, general education programs could implement measures to relate the skills taught to tasks that are relevant in the real world as currently demanded on the labor market. Irrespective of whether they focus on vocational or general education programs, countries should establish strong systems of lifelong learning that allow workers to update and adapt their skills and competences continuously. Not least, future-oriented adult education and training should nurture skills that facilitate workers' flexibility if changing labor-market conditions require occupational change.

For more details see: Ludger Woessmann, *Effects of Vocational and General Education for Labor-Market Outcomes over the Life-Cycle*. EENEE Analytical Report 37, December 2018, http://www.eenee.de/dms/EENEE/Analytical_Reports/EENEE_AR37.pdf.