Symposium IX

Wednesday, April 5th, 2017, 15:00 – 16:30

Symposium: Skills and the labor market
Chair
Simon Wiederhold (University Eichstaett-Ingolstadt and Ifo Institute Munich, Germany)
Room: Beethoven-Saal 1

Abstract
Initial analysis of the PIAAC data has shown the crucial importance of skills for success on the labor market in general. However, many of the more detailed questions remain unanswered, and many of the relevant mechanisms that give rise to the association between skills and labor-market outcomes are still a black box. The four studies combined in this symposium try to dig deeper into several aspects of how skills transform into success on the labor market. How exactly are skills used at work, and why is this so? How relevant is the reliability of educational credentials for the importance of skills on the labor market? How do vocational education programs affect adult skills and wages? And how do the effects of vocational and general education programs change over the life-cycle? These are among the key questions to be addressed in this symposium.

Presentations

- Title: Skills use at work: Why does it matter and what influences it?
  Author: Glenda Quintini (OECD, France)
- Title: The effects of vocational education on adult skills and wages: What can we learn from PIAAC?
  Authors: Lorenzo Rocco & Giorgio Brunello (University of Padova, Italy)
- Title: Vocational vs. general education and employment over the life-cycle: New evidence from PIAAC.
  Authors: Ludger Woessmann & Franziska Hampf (Ifo Institute and University of Munich, Germany)
- Title: The reliability of educational credentials: A general model on how education systems affect labor market allocation.
  Authors: Rolf van der Velden & Mark Levels (ROA, Maastricht University, Netherlands)

Title: Skills use at work: Why does it matter and what influences it?

Author
Glenda Quintini (OECD, France)

Abstract
This paper analyses how skills are used at work, why skills use matters for workers and economies and its key determinants. It draws on data for the 28 OECD countries participating in the Survey of Adult Skills. The use of skills at work is just as important a determinant of individual and aggregate economic outcomes as the development of skills, but it is less studied. After explaining how skills use at work is measured in the survey, the paper reviews how skills are used at work and how this varies across countries. It then shows that skills use has a substantial impact on productivity, wages and job satisfaction. The paper also analyses
several determinants of skills use, including High Performance Work Practices, globalisation and offshoring, and labour market institutions. It concludes by identifying policy options for improving skills use, drawing from specific country examples and the chapter's empirical findings.

Title: The effects of vocational education on adult skills and wages: What can we learn from PIAAC?

Authors
Lorenzo Rocco & Giorgio Brunello (University of Padova, Italy)

Abstract
We investigate the effects of VET on adult skills and labour market outcomes by using the PIAAC survey. Our approach is to think of the possible education careers available to individuals as alternative treatments in a multi-valued treatment framework. Focusing mainly but not exclusively on upper secondary, post-secondary and tertiary education, we assume that individuals are exposed to four alternative treatments: 1. vocational education at the upper secondary or post-secondary level; 2. academic education at the upper secondary or post-secondary level; 3. vocational education at the tertiary level; 4. academic education at the tertiary level. In most of this paper, comparisons between vocational and academic education are made at the same level of educational attainment, hence outcomes of treatment 1 (3) are compared to those of treatment 2 (4). Isolating the effect of VET courses is difficult in the absence of students' ability at the time of entry. In this paper, we assume that the assignment of individuals to the treatments listed above is explained by parental education, country of birth, the number of books in the house at age 16 as well as the pupil/teacher ratio in primary school and the proportion of residents in rural areas at the age of selection. If there are factors affecting selection into different curricula that we cannot control for with the data at hand, our estimates may still be affected by selection bias, which could amplify the estimate gap in labour market outcomes associated to alternative curricula. At the ISCED 3 and 4 level, we find that VET performs about as well as academic education as far as earnings are concerned and a bit better in terms of employment outcomes. VET at the ISCED 3-4 level is also associated with higher training incidence. Finally, our findings support the view that the presence of vocational tracks helps keeping students with limited academic attitudes in school. On the other hand and despite the emphasis put on creating and/or expanding VET opportunities at the ISCED 5 level, we find a clear advantage of academic education at this level across all outcomes considered.

Title: Vocational vs. general education and employment over the life-cycle: New evidence from PIAAC.

Authors
Ludger Woessmann & Franziska Hampf (Ifo Institute and University of Munich, Germany)

Abstract
It has been argued that vocational education facilitates the school-to-work transition but reduces later adaptability to changing environments. Using the recent international PIAAC data, we confirm such a trade-off over the life-cycle in a difference-in-differences model that compares employment rates across education type and age: An initial employment advantage of individuals with vocational compared to general education turns into a disadvantage later in life. Results are strongest in apprenticeship countries that provide the highest intensity of industry-based vocational education.
Title: The reliability of educational credentials: A general model on how education systems affect labor market allocation.

Authors
Rolf van der Velden & Mark Levels (ROA, Maastricht University, Netherlands)

Abstract
How educational systems should be organized to achieve an optimal allocation of graduates on the labor market is still a topic of persistent scholarly debate (see, for example, Müller 2005; Breen 2005). Building on insights from the sociology of education and labor economics, we explicate a general explanatory mechanism in which countries' labor force allocation is determined by the extent to which employers are able to select workers whose skills and cognitive levels are congruent with the competences demanded by their respective jobs. We show how educational systems can improve productivity of employees, firms and countries, by improving the signaling function of educational credentials. This mechanism is an important factor in explaining countries' labor force allocation in all circumstances where educational credentials are used to signify graduates' skill levels, but imperfectly reflect the true skills of graduates.

We first construct a micro-level model about the relationship between workers' skills and their job productivity, to show how and why a proper labor market allocation is important. We then argue how the outcomes of matching depend on the reliability with which educational credentials signal about graduates' skills. This reliability in turn is dependent on the differentiation of the educational system and the reliability of track placement. To explore the theoretical and empirical merits of this model, we present a computational model that formalizes our reasoning, and use simulations to explore how this model behaves in artificial experimental conditions. Secondly, we use PIAAC data on workers' skills and years of schooling to directly measure the reliability of credentials. By linking this measure to data on the relative productivity of workers, we show our model's empirical applicability. We show how educational differentiation and the reliability of track placement affect labor market outcomes and how this effect is mitigated by the flexibility of the employment system to adjust any misallocation. The model can be used to explain a wide variety of empirical regularities. To illustrate our model's general utility, we conclude the paper by linking our findings to observations in the literature on educational systems and labor force allocation.