Demand and supply of labour by education in Norway towards 2030
Linking demographic and macroeconomic models for Norway
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Abstract

Because of globalization and technological progress, most OECD-countries have seen a considerable growth in the demand for labour with higher skills and educational levels the past decades. In many countries, supply has not grown correspondingly. This has resulted in increasing differences either in unemployment or in wages between high and low skilled workers. In Norway, labour supply has followed demand more closely, and unemployment and wages have stayed relatively equal. The past trends in the educational upgrading will probably continue, and further stability in the labour market requires that labour demand and supply matches also in the future. Both for future students, who must decide on education, and the authorities, who must plan the educational capacity, industrial development and welfare reforms etc., projections on demand and supply of labour by education is useful.

In Norway, Statistics Norway has produced such projections since 1993, and in this paper, we present new projections towards 2030. A central tool in projecting the demand for labour is the macroeconomic model MODAG, which has a core of input-output relations to capture the interaction between the different industries. Because demand for labour is projected in each industry, the use of MODAG also leaves room to analyze the effects of inter- and intra-industry changes in demand for labour by education. In a macroeconomic model, labour as an input factor cannot be too heterogeneous with respect to education. MODAG gives projections for demand and supply of labour by education within only five aggregated educational levels/groups. Hence, a module translating demand for labour by industry into demand for labour by education at a detailed level is linked to MODAG.

The projections show that the previous trends of increasing demand for workers with a tertiary education and higher secondary vocational education will continue towards 2030. A decreasing share of the employed will have primary, lower secondary and higher secondary general education. According to the projections, 18 percent of the employed will have a primary or lower secondary education in 2030, as compared to 27 percent in 2007 and an estimated 63 percent in 1972. These figures include workers with unknown education. Within the group of workers with an education at a tertiary level, the projections show a high growth in demand for most of the specific educational fields, and a particularly high growth in demand for candidates in economics and administration and nursing and care giving at a lower level of tertiary education. By 2030, the employment of individuals with an economics and administration education is expected to expand by almost 100,000 persons, making this occupational group the largest at this level. The growth in demand for nursing and care giving personnel is caused by the growing size of the elderly population, and an assumed growth in the service standards in public service production throughout the projection period.
Since the long-term projections of the economy are based on a relatively balanced growth scenario with stable unemployment, labour supply in MODAG has been determined residually as the sum of labour demand and unemployment. Hence, the projections from MODAG are in their own not useful for analyzing potential mismatches in the future labour market. However, we have used the dynamic micro-simulation model MOSART to project the supply of labour by four main educational levels. From a representative sample of the population in a base year, MOSART simulates the further life course for each person in this initial population by using estimated transition probabilities. In the projections, the transition probabilities are kept constant. This implies that educational propensities and labour force participation rates are constant as well.

By comparing the labour supply from the MODAG simulations with the labour supply from the MOSART simulations, we get some indications of potential imbalances in the future labour market. We find that the projections show a higher increase in demand for labour with a lower degree tertiary education than the corresponding increase in supply. This means that it could be beneficial to increase capacity in higher education to meet increasing demand.