1. Introduction

This paper focuses on the Finnish method of forecasting skills and labour market needs in the long term, the extent and manner in which it is used to influence educational supply, and the potential relevance and transferability of the Finnish approach to Norway.

The background is the EU employment guideline of improving the matching of labour market needs by the means of better anticipation of skill needs, labour market shortages and bottlenecks. The occasion is the Mutual Learning Programme of the European Employment Strategy of which Peer Reviews of different employment and labour market policies are part.

The Finnish policy for review is to adjust the intake capacity of new pupils/students in different fields/levels of education to satisfy estimated future needs of working life on both a national and regional level. The policy is comprehensive in that all fields and levels of non-compulsory education seems to be covered, and on a rather detailed level. The process of developing intake targets for new pupils/students seems to be well integrated in governmental budgeting and planning. A model is developed for calculating the intake needs of young people by fields/levels of education.

In Norway several comprehensive models of the labour market have been developed and used to analyse the future labour market. They have either a demand-supply-gap approach or try to analyse how such hypothetical gaps will close and generate wage or unemployment effects. The studies has mainly been made by independent research institutes or governmental agencies and not been integrated into budgeting and planning. An exception has to be mentioned for two partial models of the demand for teachers and health personnel.

The Finnish model has a demand and supply side of the labour market. The demand side of the model starts with labour demand forecasts by industry. Combined with forecasts of the occupational structure in each industry, changes in labour demand by 59 occupational groups are calculated. Labour wastage by occupational group are estimated and added to the change in total demand. The result is demand for new labour (or job openings) by occupational groups during the forecasting period. In combination with forecasts for the educational structure within each occupation ("correspondence key"), changes in labour demand by field/level of education are computed.

In order to transform the demand into educational intake needs elements from the supply side are brought in: transition rates into, out of and between different educational fields/levels and labour force participation rates. It is used higher completion rates and lower tendency to complete multiple educations than in statistical data. This reflects an assumption that it is possible to improve efficiency in the educational system. The estimated intake needs are called the educational needs of working life.

The supply side model is based on population projections. It is used to compute the total educational intake required to provide all young people with an opportunity to participate in upper secondary vocationally education and training or higher education. This total is divided into different fields/levels of education in
proportion to the structure of the educational needs of working life. The unemployed labour force is also brought into these computations. The results are revised intake needs which are used as an important source of information for setting targets in the budgeting and planning of the educational system.

2. Institutional context

2.1 Decisions on educational capacity

The organisation of the education system and the concerns taken in the budgeting and planning of the educational intake capacity have implications for the use of forecasts of skills and labour market needs.

Decisions on the intake capacity to different educations may be taken on a central level by the state or by regional authorities or decentralized by the educational institutions. The decisions can be based on information about the number of applicants to the institutions or estimates on the future needs of society – especially working life. This gives four possible models for determining the educational intake capacity, as illustrated in table 2.1.

Table 1 Decision models for intake capacity

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<thead>
<tr>
<th></th>
<th>Centralized</th>
<th>Decentralized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of applicants</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Future needs of society</td>
<td>2</td>
<td>4</td>
</tr>
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As an initial rough sorting, Finland seems to belong to box number 4 while Norway belongs to box number 3. The four different institutional settings can be characterized as follows:

1. Central authorities allocate resources to the educational institutions based on the number of applicants and expected duration of education. Each applicant may apply for several different educations. Therefore, a centralised application system is needed to make transparent how many different persons are applying to different kinds of education and what priorities they have. Forecasting future labour markets are not necessary, but could have a role as guiding for the applicants. Comprehensive forecasts, covering the whole labour market, are then important, to avoid overreactions to partial forecasts.

2. Central authorities allocate resources and set intake targets and capacity limits for each institution based on anticipated future needs of society – and especially of working life, and expected duration of education. In this case it may emerge surplus capacity or bottlenecks in different fields/levels in the educational system. Some targets may not be met. In this case forecasting future labour markets are obviously necessary, and could also have a role as guiding for the applicants.

3. The institutions determine intake of new pupils/students based on the number of applicants. A private market for education, financed by pupils/students fees, belongs to this box. A more relevant system for the countries in question is a system financed by public means, based on the number of pupils/students. Forecasting future labour markets are not necessary, but could have a role as guiding for the applicants. As in box number 1, there is a risk for mis-guiding, if the forecasting is left to competing schools and employers associations.

4. The institutions determine intake of new pupils/students, but are influenced through the public financing system or by information about intake needs to behave so that future needs of society/working life is met. When several institutions provide the same education, a single institution cannot base its intake policy on future needs of society. Public financing in this case may be organized as competitive tendering among institutions to meet intake targets on macro level or through negotiations between the authorities and institutions about intake capacity and funding. In both cases the institutions are offered resources conditioned on fulfilling intake targets set by the authorities based on future needs of society/working life.
The steering of intake capacity may also be handled through indicative planning, by providing the institutions with information about future needs for different educational levels/fields. Also in this case it may emerge surplus capacity or bottlenecks in different fields/levels in the educational system. Also in this case forecasting future labour markets are necessary, and could also have a role as guiding for the applicants.

Combinations of these models are obviously possible.

2.2 The role of forecasts

Forecasts of the future competence needs of society are obviously useful in case 2 and 4 in table 2.1. To avoid surplus capacity and bottlenecks in the educational system in these cases, the forecasts also could be designed to act as guiding to applicants.

Forecasts can play an important role also in case 1 and 3. If presented properly, they can be an important part of the occupational and educational guidance of youths who are in the position of choosing education. Youths make more or less their own forecasts or expectations for the future, and a role is to provide input to the formation of these forecasts/expectations.

The proper way of presenting such projections, is to present figures for intake targets for different educational fields and levels.

These targets give an indication to applicants about how many should start in the different educations today to meet future demand of employers. A student who has started in an education can compare the total number of new students in this education with the target. If the number of new students is lower than the target, there is no labour market need to leave this education. Contrary, the education can attract more students. If the number is higher, it is possible than some student will change to another education.

In principle all the four cases could result in the same mix of education in the labour force, provided public funding of education and relevant guiding of applicants.

2.2 Secondary education

In Finland a key objective is to provide all young people with an opportunity to apply for upper secondary vocational education and training. Anticipation of the future labour market has become an established part of the development of vocational education and training. The providers of education decide about intake numbers in different fields in secondary education, but use the forecasts as input in their decision process.

In Norway all youths are entitled to a post-compulsory secondary education, general or vocational, and the counties (19 counties) are responsible for providing this education. Thus, the total number of youth in upper secondary education is determined by the number of them applying for and accepting to enter post-compulsory secondary education, and by the duration of their attendance at such education.

The students can prioritize three different fields they want to attend, and they are entitled to start in one of them, not necessarily the one they have as top priority. This means that the number of pupils/student in different educational fields on secondary level not is fully determined by the number of applicants.

How is then the intake capacity in Norway determined? Several sources of information are used when the counties are planning the capacity. The actual situation on the labour market has an impact on the capacity on
different vocational fields. The number of applicants is of importance, and so are the costs per pupil/student. Sporadic projections of the future need of different kinds of vocationally trained workers are made by some counties and some employers associations. Some national projections have been made for broad groups of personnel by Statistics Norway and the Directorate of Labour.

Finland seems to have a more systematic and comprehensive approach to projections on this level of education and to provide the decision makers with forecasts on labour market needs.

2.3 Tertiary education

In Finland the polytechnics have a system for deciding on intake capacity in different fields like the negotiation version of model 4 in table 2.1. Fixing targets for intake of new students is an important input in the negotiations with the institutions. The model of future labour market needs is consequently focused on estimating intake. The universities have a larger freedom to decide on the intake of new students. The number of applicants has a role, in addition to the forecasted needs of the future labour market. But some financial incentives are used, connected to the production of people with different degrees.

In Norway, the ideology is more directed towards model 3; providing access to higher education and to meet the demand of young people. However, in practice this approach has been difficult to implement because of constraints on funding. It is not quite clear what have been the determining factors in the dimensioning of different fields/levels in higher education the last ten years, but forecasts on future labour market needs has not been important, except for teachers and health personnel.

3. Transferability

3.1 Ideology

The thinking in Norwegian educational planning is that it is flexibility in what kind of education is useful in many occupations, and that it is both conceptually and statistically difficult to determine the future need for a lot of specific educations. This means that the risk of educational mismatch is low for a lot of occupations and that detailed planning of intake capacity based on future needs is both problematic to make and not necessary. Using data on previous occupational and educational structures in working life to forecast future needs may in addition in some cases be to repeat bad practice or second best solutions in recruiting policy. The Finnish approach will therefore probably be met with scepticism in Norway.

On the other hand, decisions have to be made on intake capacity when recourses are scarce. And they often are. And the Finnish approach provides a consistent frame for discussing the consequences of these decisions.

3.2 Intake needs

An important feature of the Finnish system is its focus on intake needs. In Norway several of the forecasts focus on the future supply and demand, which is not easy to relate to whether too many starts in an education or too few - compared to future needs of society. The Finnish forecasting approach is important both if decisions are based on the number of applicants and the future needs of society.
3.3 Occupations

In most Norwegian models of future demand, the occupation level is skipped, except in some special models for some public sectors. Instead the educational structure in each industry is used directly to compute demand. The Finnish approach is to focus on occupations. This may open up for easier communication with sector experts and for discussing the issue of inter occupational mobility. This should be considered in the Norwegian context.

4. Other aspects

One of the critical features of the Finnish approach may be the lack of substitution in the demand model. The approach is to estimate what is required by the future working life. However, it is a lot of flexibility in working life in what sort of educated personnel which could be useful. In some occupations the flexibility is low, like for electricians or physicians. In other occupations, as in several administrative functions, different types of personnel can substitute each other without significant costs or benefits.

To avoid future shortages and bottlenecks on the labour market, the substitution structure is important to understand. In some cases it will be unproblematic to not meet an intake target in the Finnish system, because substitution takes care of the possible shortage. But on the other hand the potential shortage, through the substitution mechanism, can lead to an unexpected shortage in another part of the labour market, like when teachers move out of school and enter other occupations to substitute a lack of personnel there, motivated by wage or career considerations.

This is an argument for focusing on the future need for personnel which are especially difficult to substitute and which are of critical importance for future competitiveness and welfare. Because of the comprehensiveness of the Finnish model, and the openness for scenarios and expert evaluations in making assumptions, such considerations can probably be included ad hoc.

Some Norwegian studies have tried to incorporate substitution in a demand model, and the output is then development of relative wages. Extreme changes in future relative wages may in such models indicate types of personnel of critical importance. However, it is problematic to estimate degrees of substitution between many types of personnel.

The belief in flexibility in what kind of education is useful in the future labour market is an important part of the Norwegian approach to dimensioning the educational system. However, even if the labour market can absorb different educational compositions of the labour force, some compositions can be more productive in the economy than others. To be satisfied by an educational mix than seems to be absorbed, can be to renounce on a more productive mix.

The requirements of the labour market, measured by what type of personnel that is currently used, reflects the history of how many has been educated on different levels/fields in each country. As a simplified example, figure 4.1 illustrates a country with two types of personnel: people with high education and people with low education. Point A indicates the employment of these two types of personnel at a given point of time. The 45 degree line illustrates hypothetical alternative educational mixes of the same total employment. If the society had invested more in high education, the educational level would be closer to point B.

The bended curves represent different levels of production. The production is higher in point B than in point A. Along each of the bended curves, the production is constant, which illustrates that a certain level of production can be reached by different mixes of employment.
What are the needs of the labour market in this case? What we can observe is the educational level in point A. But the production would be higher closer to B, and the wage differences between high and low education (the slope of the dotted line) would be smaller. It is problematic to use the educational level in point A as an indication on the future needs.

The costs of high education are not taken into account in the figure 4.1. It obviously costs more to create a higher educational level, not the least in terms of fewer persons in the labour force. In figure 4.2 we look at two types of education which has the same costs. Again we can get higher productivity with a different educational mix than in the observed market point A. Moving in the direction of B is a potential source of productivity gain which comes in addition to gains from an increased educational level. It is not quite clear how the future occupational and educational structures in the Finnish forecasting models are determined, but one way to interpret the role of experts in the forecasting process is that they try to identify points of type B in figure 4.2, where the educational mix of employment is maximizing production.

Figure 4.1

One country, two types of educated labour
Figure 4.2

One sector, two types of educated labour, same educational level

References

