

Appendix C – Improving the Knowledge Base

C.1 Major gaps in the information base

In the country-specific background reports and detailed analyses of external teams, the Review has identified several areas where data or research gaps impair policy diagnosis and informed policy making. These information gaps can be grouped along the broad areas of tertiary education supply and demand, access and participation, human and financial resources, and completion and outcomes. In some cases, it would be sufficient to address these gaps at the system level while information at institutional level would be desirable in other instances.

C.1.1 Tertiary education supply and demand

The first area where better information could help policy makers make informed diagnosis and decisions on the allocation of resources in tertiary education relates to the supply of and the demand for tertiary education, and possible mismatches between them. Indeed, identifying such mismatches is the first step to steer the system to better match supply and demand and thereby grasp the full benefits of public investment in tertiary education. In this respect, while the supply side of tertiary education provision is generally well-informed, especially in countries where tertiary education is supplied by public tertiary education institutions (TEIs), the demand for tertiary education and its underlying drivers are often less well known.

With respect to the supply of tertiary education, the Review has identified information gaps in relation to the coverage of non-traditional modes of tertiary education delivery. Data collections and analyses often devote inadequate attention to the provision of lifelong learning opportunities and flexible study options despite the relevance of these non-traditional modes of delivery from the perspective of the labour market with a view to upgrade workers' skills or address specific skill shortages.

In addition, some countries are currently unable to collect comprehensive data on all TEIs and thus cannot devise a full picture of the domestic supply of tertiary education. This gap usually results from the difficulty in gathering information from private providers.

Better data and analysis are equally necessary on the demand side. Background reports and external reviews of countries participating in the Review have widely recognised the insufficiency of data and analysis with respect to the labour market demand for tertiary education, a shortcoming that impairs student adaptation to labour market signals, the ability of TEIs to learn about and respond to labour markets and the capacity of public officials to adapt resource allocation to labour market needs in terms of fields of study, programmes and their regional distribution.

At the system level, information would be desirable on general labour market conditions – e.g. labour force participation, unemployment and vacancy rates as well as working hours – to identify skill shortages and monitor trends in demand for tertiary educated workers. In addition, research would also be needed to assess whether graduate over-supply is an issue, to estimate the frequency with which students take up the “wrong subjects”, and gauge whether graduate over-education or mismatch is of concern. Providing informed responses to these questions would assist policy makers in steering the system in ways that enhance its effectiveness.

Such monitoring would ideally need to be carried out at the sectoral level. For instance, the demand for human resources in research and innovation is evolving in both the public and private sectors of many OECD countries, and an important policy challenge is to improve information on supply and demand mismatches in human resources in science and technology, so that TEIs can respond flexibly and rapidly. There would also be a need for some analysis of labour market demand at regional level, to help TEIs better respond to the needs of their communities.

In addition, up-to-date information on wages and employment of recent graduates by field of study and, ideally, at the institutional level would also assist prospective students form accurate expectations about the returns of tertiary programmes in various fields and TEIs. Research might also be carried out to examine the wage and employment expectations and the actual labour market outcomes of tertiary students and assess whether changes in expectations have an impact on prospective students’ enrolment decisions. The large-scale analysis that has recently been carried out in several European countries is an interesting step in this direction (Brunello *et al.*, 2001).

Another aspect of the demand for tertiary education that would require closer scrutiny in terms of empirical research and analysis relates to the factors driving international students’ enrolment decisions. Indeed, the demand for tertiary education emanating from international students has been growing in the majority of countries taking part in the Review. Yet, surprisingly little is known on the factors and levers underlying this component of tertiary education demand. With the projected decrease in student populations in many OECD countries, international students are likely to become more and more important to the survival of TEIs and/or programmes, and research on the factors underlying their destinations is becoming increasingly relevant.

Lastly, research would also be desirable on the factors underlying enrolment decisions by disadvantaged students if countries are to tackle equity issues seriously. In a great number of participating countries indeed, there is a general lack of knowledge about the extent to which equity in tertiary education is a problem due to the lack of critical data such as the socio-economic or ethnic background of students in tertiary education. In these countries, equity issues are often largely unidentified because data by ethnicity, income, or parental education are not compiled on a systematic basis.

C.1.2 Access to and participation in tertiary education

Information and research are also needed to identify equity issues in terms of access to tertiary education by disadvantaged students, their choice of majors and the conditions of their participation in tertiary education relative to more privileged groups of students. Otherwise, this information gap hinders the development and monitoring of policies for inclusiveness.

A coherent and systematic approach to equity would in the first instance assess which groups are at a disadvantage when it comes to access and participation in tertiary education, *i.e.* whether equity issues are related to ethnic background, socio-economic factors, gender, disability *etc.* A secondary question relates to identifying where the equity problems arise, *i.e.* whether they result from inequity of opportunities at the school level, from a lack of knowledge about the benefits of tertiary education within specific groups, are linked to admissions issues or insufficient student support during studies, or result from financial constraints faced by families. Answering these questions would require the systematic collection of data such as the socioeconomic, ethnic or disability background of the tertiary student population, and more effective student tracking and cohort analyses to examine their progress over time. In addition, targeted research would need to gauge the impact of these background variables on enrolment decisions, the social and economic conditions of student life, the recourse to student loans to finance tertiary studies, completion rates *etc.* This would inform the development of appropriate policies to reduce inequalities in tertiary education.

Another area where more information and research would be sought for relates to non-traditional patterns of participation and attendance, *i.e.* whether there are any differences between full-time and part-time students, campus-based or distant students, as well as between those who pay for their studies and those who are entirely supported by the State. These questions are gaining in importance as more flexible offers are developing throughout the OECD, but little is known on their effectiveness relative to more traditional modes of full-time campus-based participation. In order to address these questions, a more elaborate collection of data would be required in some countries.

C.1.3 Human and financial resources invested in tertiary education

The Review has also identified some data and research gaps with respect to the resources invested in tertiary education.

In terms of human resources, some countries lack basic data at the system level allowing them to picture the characteristics of the academic staff working in TEIs. Yet, planning the replacement of retiring academics, organising programmes of training and professional development or improving gender balance in academia require such basic information as the distribution of academic staff by age, gender and qualifications. In addition, little is known on the proportion of international academics at the institutional level, despite the fact that this ratio would provide insight into the scope for internationalisation at home in different TEIs.

Another aspect of internationalisation which is little documented relates to the international mobility of academic staff. Stronger data instruments need to be developed in this area in the majority of countries taking part in the Review, especially to record short-term international mobility. Research would also be needed to assess the impact of international mobility on academics' career tracks and promotions.

In terms of financial resources, detailed data are usually available – at least for publicly-funded TEIs – but the Review has nevertheless identified some data gaps in some areas such as institutional revenues off-budget. Another area of tertiary education finance where data gaps ought to be addressed relates to the financial implications of incoming international student mobility, *i.e.* the costs or revenues generated at the institutional and system level depending on the tuition fee structure applicable to international students. Indeed, while it may be rational for the public sector of certain host

countries to subsidise the education of international students in acknowledgement of the externalities they yield, the costs ought to be transparent for the purpose of good public policy.

Research would also be needed to assess the impact of various funding approaches on the behaviour of TEIs, or students in case tuition fees are introduced. Indeed, the empirical evidence on the impact of funding approaches on institutional strategic behaviour is scarce, and research on students' responses to the introduction of fees in other countries might be useful to policy makers in countries contemplating this policy option, as a way to devise adequate support schemes and complementary policies.

On a related matter, research would also be useful in relation to the allocation of funding for R&D. Indeed, many countries are now moving towards funding in priority research projects reaching a critical mass, although the issue of identifying what critical mass means across different fields of research remains unresolved. Further research would therefore be required in this area to inform policy development.

C.1.4 Outcomes of and returns to tertiary education activities

Tertiary education policy diagnosis and development is also impaired to a significant extent by data and research gaps in relation with the outcomes of and returns to tertiary education activities. These information gaps relate in particular to progress and completion, the quality of outcomes and the comparative performance of different programmes and TEIs, information on non-cognitive outcomes of tertiary education, the labour market performance of tertiary graduates, and the returns to international activities of TEIs.

With respect to progress and completion of tertiary education programmes, a number of countries lack information on student retention, dropout, progress, completion and time needed for completion disaggregated according to the background of students to give insight into equity issues. Indeed, enhancing equity is as much about expanding access for disadvantaged students as well as ensuring that those who enrol in tertiary programmes are adequately supported to succeed. There is thus an evident need to develop stronger data instruments on participation and success by disadvantaged groups in countries where such information is not yet available. The knowledge gained from such information would allow the development of appropriate mechanisms to reduce inequalities in tertiary education.

As far as the quality of outcomes and the performance of tertiary education are concerned, there also seems to be a significant lack of relevant national and institutional data in several countries participating in the Review to assess the performance of the tertiary education system as a whole, as well as the performance of individual TEIs. In particular, there would be a need to develop baseline information on progress, completion and time needed for completion of tertiary programmes disaggregated by field of study and TEI. Currently, very limited data are available on such critical elements of information in a number of countries. Without precise statistical data for each individual TEI, it is very difficult to track student progress and to help TEIs benchmark their efficiency – in a quality improvement perspective – relative to other TEIs offering similar programmes. The *Unistats* Web site developed in the United Kingdom is an interesting model in this respect (www.unistats.com) (see Box 3.2).

But completion rates and time needed for completion are only rough measures of quality. Another area which is under-researched relates to the learning outcomes of students in different TEIs. Few countries collect such data at national level and there is no such endeavour at the international level (see Box 5.2; Stensaker, 2003; Nusche, 2008). The resulting asymmetries of information complicate students' enrolment decision-making and impede the use of students "voting with their feet" as a way to encourage TEIs to improve their teaching and learning. Instead, students tend to base their enrolment decisions on perceptions of reputation or imperfect proxies of quality such as the research performance of TEIs or rankings. This situation has the perverse effect of giving TEIs an incentive to focus efforts on research rather than teaching.

A number of countries and stakeholders also stress the importance of seeing tertiary education not only as a preparation for the skilled labour market, but also as an instrument for students' personal development and preparation for active citizenship. Yet, information and research on the impact of tertiary education participation on the development of these non-cognitive skills is scarce, and measuring this contribution of tertiary education would require the development of national assessments of graduate skills.

But the most visible information gaps with respect to tertiary education outcomes often relate to the labour market performance of tertiary graduates and the returns of different types of tertiary qualifications. In particular, there would be a need to develop baseline information on the destinations and employment rates of graduates in specific fields of study. Better data and analysis on the labour market outcomes of students would be especially important in systems that rely heavily upon central or regional authorities to allocate study places, by enabling them to accurately assess current labour market conditions. The *Higher Education Graduate Employment Observatory* in Chile and the *Labour Market Observatory* in Mexico are good models for the development of information systems on the labour market outcomes of tertiary education (see Box 9.1).

Ideally, information systems should also permit the tracking of long-term graduate labour market outcomes, so that TEIs and public officials can understand not only wages and unemployment spells immediately after graduation, but also the longer-term experiences of graduates, including career mobility, occupational change, and job mismatch and over-education. Such information about the link between different types of tertiary education and labour market experiences could then be used to shape policies with respect to the approval of new study programmes, accreditation procedures, and the engagement of labour market participants in institutional governance.

In relation to the employability of tertiary graduates, little is known on the ability of tertiary programmes and TEIs to prepare students for the labour market. Further research would therefore be needed to measure the employment skills of graduates. One way in which this might be done is through the development of a national assessment of graduate skills, as is currently being explored in Australia.

Also, better measures of rates of return of investment in tertiary education would be useful to inform prospective students on the value of tertiary education investments, and possibly encourage individuals from disadvantaged groups to enrol in tertiary education. Such measures exist at the aggregate level, but would be useful at the institutional level or disaggregated by fields of study. Addressing the data gaps mentioned above in terms of labour market returns by TEI and/or field of study would provide researchers with the necessary underlying data to disaggregate the rates of return indicators accordingly.

Lastly, further research and analysis would be needed to assess the outcomes of a number of international activities of tertiary education.

At the individual level, students are encouraged to take part in international mobility in many countries, yet little is known on the quantitative impact of study abroad on their linguistic and multicultural skills, learning outcomes, and future labour market performance, although a few surveys explore these issues in the EU context to assess the impact of EU mobility programmes (Bracht *et al.*, 2006). In most countries participating in the Review, tertiary education systems appear to have a limited capacity to identify individuals and their characteristics, and to trace the paths of those who took part in some form of internationalisation relative to those who did not. This information would however be important to assist government authorities make decisions regarding public support for internationalisation on the basis of hard data rather than hearsay or anecdotes. This calls for better information on the “international experience” of individuals in graduates or labour force surveys.

At the system level, there would also be a need for improving information on the migration outcomes of international student mobility. It is generally widely accepted that some students who study abroad subsequently settle in their country of study, but there seems to be a relatively weak information base to guide tertiary education policy development. Policy development would benefit from data evidencing brain drain and assessing the extent of the phenomenon. From the perspective of host countries of international students, information on their stay rates would be equally important to assess the outcomes of internationalisation activities.

C.2 The challenge of addressing information gaps

Identifying data and research gaps impairing evidence-based policy development is however only part of the challenge for policy makers. The real hurdle is to address and fill these evidence gaps.

The biggest difficulty probably lies in the difference in timeframes between policy makers and researchers, whereby policy makers often need swift answers to their questions while data development and analysis are time-intensive. The current development of the OECD *Programme for International Assessment of Adult Competencies* (PIAAC), which will eventually provide insight into adults’ employment skills – including those of tertiary graduates – is illustrative in this respect. It is expected that it will take between seven and ten years for the programme to deliver results, *i.e.* an eternity at the scale of policy makers. Similar time constraints would apply to the development of assessments of cognitive outcomes at institutional level, due to the extensive and sequential work required on scoping the focus of the assessment, feasibility studies, development of instruments, field trials, refinements, final data collections and analysis of results. Moreover, research based on those rich datasets would take a few more months/years to be completed. Obviously, data collections at national or institutional level are faster to launch and implement than large scale international assessments, but these examples illustrate why it is important to initiate data development as early as possible once a policy issue is identified that lacks empirical evidence.

Similar differences in timeframes exist between policy makers and educational planners at national and institutional level on the one hand, and business and employers on the other hand. Indeed, the time horizon of many employers as regards recruitment planning is often of a few months to one year, whereas the time frame for the tertiary

education system to respond to expressed needs is much longer. For instance, it takes approximately one year's planning to develop a new course/programme and then three to five years for a fresh student to graduate. A challenge for educational planners and policy makers is therefore to anticipate expressed needs and engage in some prospective and forecasting of labour market demand.

Another common problem is that data development often requires coordination between different areas of public authority – e.g. labour market and education authorities in case the data needed to assist educational policy development requires amending labour force survey questionnaires, or immigration authorities if information on the previous “international student” status of recent immigrants is sought. Policy coordination towards data development is also increasingly required between different levels of public authority, and different geographic jurisdictions. Indeed, the trend towards decentralised decision-making in education in many OECD countries has given more responsibility and mandating to local authorities and TEIs themselves, but the drawback of this is that evidence-based education research may be seen as unaffordable in nations that do not have strong central planning of tertiary education. Even if particular regions or individual policy makers were convinced of the importance of evidence-based policy, the lack of generalised agreement on policy priorities coupled with possible regional rivalries and greater or lesser willingness to share information could very well lead to a situation where policy makers see the pooling of resources required to engage the national research community as a time-consuming and fruitless procedure (OECD, 2007).

Addressing data gaps may also face legal obstacles, as evidenced by the recent attempt of French authorities to collect information by ethnic background in order to monitor discrimination, which was prohibited by the French Constitutional Council.⁹⁶ In many countries indeed, statistical data collections are strictly supervised by legal provisions. In particular, the collection of information on the ethnic or racial background of individuals is forbidden in a number of European countries. Some of these countries have adopted exceptions to this principle in accordance with the *European Commission against Racism and Intolerance* (ECRI) recommendation to collect ethnic data⁹⁷ as a way to monitor disadvantage and promote equal opportunity (Simon, 2007). But overall, the example of ethnic data illustrates the difficulties faced by policy makers in improving their information base in some areas. Legal obstacles may also result from the inability by policy makers in some countries to force TEIs – in particular private ones – to respond to their data queries. In other countries by contrast, TEIs are required by law to submit quantitative information to educational authorities on a regular basis, in which case new data requests require a complex process to amend the official questionnaire that TEIs have to fill in. As a result, the collection of new data such as off-budget revenues, academic staff characteristics, completion rates or mode of attendance of students often relies upon the persuasion of respondents and, ultimately, the good will of TEIs' administrators in filling supplementary data questionnaires.

96. Since 1978, French law prohibits the noting down or taking into account of the ethnic or religious background of people surveyed for statistical purposes (France Diplomatie, 2007).

97. ECRI recommends ethnic data collections as an instrument for shaping sound policies against racism and racial discrimination and for promoting equal opportunities but asks governments to ensure that such data collection must be carried out “with due respect for the principles of confidentiality, informed consent and the voluntary self-identification of persons” (Simon, 2007).

Lastly, the effective use of research as evidence basis in the policy making process critically depends on the nature and depth of the research/policy interface. Indeed, research results that remain within the realm of academia will not be able to be understood or accessed when needed, greatly limiting their impact. Another intricacy also derives from the common contradictions of research results, making it difficult to infer a single course of action that could be reflected in policy. In this context, think tanks and brokerage institutions can play a critical role in bridging the divide between policy makers and researchers. Not only do they filter information so that only the best-available evidence is used for decision-making, but they are also important in bringing together the disparate communities of education researchers and disseminating research results to as wide an audience as possible. In doing so, they help promoting both top-down and bottom-up changes to the system through interactive dialogue between policy makers, researchers and practitioners. Brokerage agencies are most common in the Anglo-Saxon countries, but they are becoming more frequent in continental Europe (OECD, 2007).

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