



# UNIVERSITIES AND THE EVOLVING GRADUATE LABOUR MARKET

**ANDREW NORTON**

## ABSTRACT

Inherent uncertainties in the labour market make it hard to predict skills needs. Technological change, rising and falling industries and the economic cycle all affect the demand for labour, while migration as well as universities affect its supply. As a result, no higher education system can guarantee high skill jobs for all graduates or no skills shortages for employers. But Australia's previous system of distributing student places to universities, which was based largely on historical allocations, led to avoidable skills shortages. The demand driven system phased in during the years to 2012 gave universities more capacity and stronger incentives to focus on skills shortages and graduate employability. In its early years, the demand driven system has successfully met most skills shortages and universities are paying more attention to general graduate attributes that contribute to employability. But a surge in student numbers has produced more graduates than the labour force needs in high-skill occupations. Better informed demand, particularly on the choice between vocational and higher education, could improve the demand driven system.

## INTRODUCTION

It has never been easier to become a university student. But it has never been harder for university graduates to get work that uses their skills. The disjunction between these facts raises doubts about how well our higher education system adapts to changes in the labour market. While policy changes have helped employers hire sufficient numbers of skilled workers, large numbers of graduates are working in jobs that do not require higher education qualifications.

## GRADUATE EMPLOYMENT

Graduate employment problems are now a high-profile issue. But in 2008, when a higher education policy review chaired by Denise Bradley was considering removing the then constraints on student numbers, graduate employment prospects looked good. Forty high-skill professional and managerial occupations, many reserved by regulation for graduates, were listed as in skills shortage. This was the highest number

in a survey going back to 1986.<sup>229</sup> Only 15 per cent of new graduates seeking full-time work were without it four months after completing their courses, the lowest number since before the early 1990s recession.<sup>230</sup> Just 2 per cent of graduates seeking work were unemployed.<sup>231</sup> According to research commissioned by the Bradley committee, the good times would continue. It forecast that demand for graduates would exceed supply by 2010, with shortages to continue until at least 2018 without policy change.<sup>232</sup>

In reality, 2008 was the peak of a boom. Although the graduate unemployment rate remains low – it was 3.4 per cent in 2015 – all graduate labour force indicators are worse now than in 2008. By early 2014, new graduates had more difficulty finding full-time work than any completing cohort before them. Thirty-two per cent of recent graduates were unemployed or in part-time or casual jobs while looking for full-time work.<sup>233</sup> Several thousand more graduates found full-time jobs in 2015 than in 2014, but with course completions still growing the percentage still looking for work declined only a little.<sup>234</sup> A three year after completion survey finds significant improvement over time, but a parallel trend of declining full-time employment.<sup>235</sup>

To stay in work, graduates take administrative, sales, hospitality and other jobs that are unlikely to require higher education qualifications. By 2015, more than a million graduates, or around 30 per cent of the graduate workforce, were in such jobs.<sup>236</sup> The number of professional and managerial occupations in skills shortage had fallen from forty to six. Some analysts predict that technological change will reduce graduate jobs in key fields including law, health, architecture, education and management consulting.<sup>237</sup>

## GOVERNMENT POLICY ON GRADUATE EMPLOYMENT

We know that technological change will affect how work is done, we know that some industries and occupations will grow while others will decline, and we know that there will be economic booms and busts. We know that migration in and out of the country as well as the number of people completing higher education qualifications in Australia affects the size and skills mix of the graduate labour force. But the scale, timing, detail and interaction of all these factors can never be known years in advance with any precision. As a result, no higher education system can perfectly match graduates with jobs or guarantee employers all their vacancies will be filled. But government policy can affect the capacity of universities to adapt to the labour market.

<sup>229</sup> Department of Employment, *Skill shortage ratings—1986 to 2015* (Canberra: Department of Employment, 2016).

<sup>230</sup> GCA, *Graduate Destinations 2015: A report on the work and study outcomes of recent higher education graduates* (Melbourne: Graduate Careers Australia, 2016): 19.

<sup>231</sup> ABS, *Education and work 2008, Cat. 6227.0* (Canberra: Australian Bureau of Statistics, 2008), table 11.

<sup>232</sup> D. Bradley et al., *Review of Australian higher education: final report* (Canberra: Department of Education, Employment and Workplace Relations, 2008): 15-17.

<sup>233</sup> GCA, *Graduate Destinations*, 19. Only those seeking full-time work are included in this analysis.

<sup>234</sup> Grattan analysis based on GCA, *Graduate Destinations* and Department of Education and Training, *uCube—Higher education statistics* (Canberra: Department of Education and Training, 2016).

<sup>235</sup> GCA, *Beyond Graduation 2015: A report of graduates' work and study outcomes three years after course completion* (Melbourne: Graduate Careers Australia, 2016).

<sup>236</sup> ABS, *Education and work 2015, Cat. 6227.0* (Canberra: Australian Bureau of Statistics, 2015), table 10.

<sup>237</sup> R. Susskind and D. Susskind, *The future of the professions: how technology will transform the work of human experts* (Oxford: Oxford University Press, 2015).

Before 2009, universities could respond to labour market needs, but this was not always easy or in their interests.<sup>238</sup> They received a block grant for a specified number of student places. Except when the government funded new student places, increasing student places in one field meant reducing them in another. As fewer places may upset internal and external university constituencies, adjustments could be politically difficult. Universities could also be financially disadvantaged by moving student places from low to high-cost disciplines.<sup>239</sup>

Universities faced limited market pressure to incur these political and financial costs. The government kept the total supply of student places well below student demand.<sup>240</sup> If a prospective student did not like what a university offered, somebody else would take her place, ensuring the university received its funding. For its part, the government did not routinely monitor or report on university performance in meeting skills needs. If it felt the need to meet skills shortages, it also avoided hard political decisions, and allocated new places rather than redistributing existing places.

In the years before the Bradley committee's deliberations, the government had provided new places to meet labour market needs, especially in engineering and health fields.<sup>241</sup> The mining boom that was driving up demand for engineering graduates was relatively new. But most other shortages were in health-related occupations, where in some cases skills shortages, as measured by difficulty filling vacancies, had been experienced since the 1990s.<sup>242</sup> The old system was slow to respond to clear needs.

Under the 'demand driven' system proposed by the Bradley committee and largely implemented by the Rudd-Gillard governments, universities have more capacity to meet student and labour market demand. They can take unlimited numbers of bachelor-degree students, ending trade-offs between old and new places. They can now expand to meet existing skills shortage needs, and start new courses aimed at emerging fields and occupations, without reducing enrolments in current courses. For each new place, they receive the full funding rate for that discipline – when under the previous system they received a lower or zero funding rate for students above their government allocation. While previously universities could be politically and financially penalised for meeting student demand, now there are potential costs in not meeting it, as they could lose enrolments to other universities.

## OCCUPATION-SPECIFIC SKILLS AND THE DEMAND DRIVEN SYSTEM

Demand driven funding largely achieved what it set out to do on occupational skills shortages. The review of the demand driven review I completed with David Kemp in early 2014 examined all persistent skills shortages between 2007 and 2012 that could

<sup>238</sup> Strictly speaking, the demand driven system was phased in from 2010 to 2012. But following a partial relaxation of previous caps on student numbers from 2008, enrolments started increasing significantly from 2009.

<sup>239</sup> A. Norton, *Keep the caps off!: Student access and choice in higher education* (Melbourne: Grattan Institute, 2013), 13-14.

<sup>240</sup> For unmet demand figures, see A. Norton, 'Equity and markets', in *Student equity in Australian higher education: Twenty-five years of A Fair Chance for All*, A. Harvey, M. Brett and C. Burnheim, Eds., (Singapore: Springer, 2016): 186.

<sup>241</sup> A. Norton, 'Markets and central planning in meeting labour market needs: lessons from higher education', in *Competition in the training market*, T. Karmel, F. Beddie and S. Dawe, Eds. (Adelaide: National Centre for Vocational Education Research, 2009): 27-29.

<sup>242</sup> Department of Employment, *Skills shortages*.

be analysed with applications and enrolment data. We had only one year of enrolment data in the fully operating demand driven system, but four years in which universities had been significantly increasing enrolments. Of the 14 skills shortage occupations, in engineering and health-related fields, universities had responded with increased supply in 12 by 2012.<sup>243</sup> By 2014, one of the remaining occupations had ended its skills shortage and enrolments grew by nearly a third in the other.<sup>244</sup>

Some skills shortages are more complex than lacking graduates in the relevant field. In 2014, more than half of Information and Technology (IT) industry respondents to an employer survey said they would hire more graduates if they could find suitable applicants.<sup>245</sup> But a third of IT graduates could not find full-time work in the months after completing their courses. The comments of IT professional bodies, student satisfaction surveys and attrition rates from IT courses all point to issues with IT education in Australia, although attrition has been declining.<sup>246</sup> That these issues were still significant years into the demand driven system suggests a slow response. In April 2016, however, the Australian Council of Deans of Information and Communications Technology announced plans to adapt courses to changes in the IT industry.<sup>247</sup>

Under Australia's higher education system, universities can offer courses for jobs that may not yet exist. As self-accrediting institutions within a demand driven system few regulatory obstacles stand in their way. Some universities are working with the idea that many students will start their own businesses. In 2014, more than a dozen bachelor degree courses had the word 'entrepreneur' in their title. The 'transdisciplinary' Bachelor of Creative Intelligence and Innovation offered by the University of Technology, Sydney (UTS) aims to help students become lifelong innovators and entrepreneurs.

The period since the demand driven review shows that, at the field of education level, students and universities regularly adjust to skills over-supply as well as under-supply. As the mining boom ended, applications and commencing bachelor degree enrolments for engineering declined. As reports emerged of fewer opportunities for new teaching graduates, applications and enrolments responded. The same pattern is evident in business courses.<sup>248</sup> Business graduates do not have unusually high joblessness, but their professional and managerial employment levels are low for a field that is vocationally oriented.<sup>249</sup> Possibly job quality information is feeding back into the student market.

<sup>243</sup> D. Kemp and A. Norton, *Review of the demand driven system: final report* (Canberra: Department of Education, 2014): 21-25.

<sup>244</sup> Chemical engineering exited skills shortage. Surveying remained in skills shortage but enrolments increased to 2014: Department of Education and Training, *Higher education statistics collection* (Canberra: Department of Education and Training, 2016).

<sup>245</sup> GCA, *Graduate Outlook 2014: The report of the 2014 Graduate Outlook Survey, Perspectives on graduate recruitment* (Melbourne: Graduate Careers Australia, 2015): 6.

<sup>246</sup> A. Norton and B. Cakitaki, *Mapping Australian higher education 2016* (Melbourne: Grattan Institute, 2016), 92-96. There are substantial differences between universities, ranging from 14 per cent to 49 per cent looking for full-time work.

<sup>247</sup> S. Matchett, 'Worse western: hundreds of UWA jobs to go', *Campus Morning Mail*, 25 August 2016, <http://campusmorningmail.com.au/worse-western-hundreds-uwa-jobs-go/>

<sup>248</sup> Department of Education and Training, *uCube – Higher education statistics; Undergraduate applications, offers and acceptances, February 2016 and Undergraduate applications, offers and acceptances 2015* (Canberra: Department of Education and Training 2015 & 2016); ABS, *Labour force, Australia, detailed quarterly, May 2016, Cat. 6291.0.55.003* (Canberra: Australian Bureau of Statistics, 2016); Andrew Norton, 'Should teacher education places be capped?', [andrewnorton.net.au](http://andrewnorton.net.au), 26 September 2016.

<sup>249</sup> This labour market is affected by large numbers of non-citizens. For Australian citizens, the professional and managerial employment rate for business graduates is 64 per cent, six percentage points below the overall rate: ABS, *Microdata: Education and work, May 2015, Cat. 6227.0.30.001* (Canberra: Australian Bureau of Statistics, 2016).

An exception to this pattern of student markets adapting to labour market trends is science. Science applications increased from 2009 to 2016, while employment outcomes declined from mediocre to very poor, with a full-time employment rate 17 percentage points below the figure for all bachelor-degree graduates.<sup>250</sup> Arguably, prospective students are responding to labour market information but have been misled about their prospects. Science degrees have been promoted by politicians and others since 2007.<sup>251</sup> Another view is that poor science employment outcomes are temporary before new industries emerge to use science graduates' skills.<sup>252</sup>

The wisdom of making school leaver course choices so important to skills supply is sometimes questioned. But the demand driven system's mechanisms for helping graduates get available job opportunities broadly work. Student choices generally move in directions that are consistent with available data: growing in fields where employment is likely to increase, and declining when jobs are harder to find.

Universities respond to these signals from the market with speed and reliability. Bureaucratic systems of allocating student places could identify the same labour market trends, but could not respond as efficiently. They must decide not just on which disciplines should grow, but which universities should take additional places. Negotiations with universities take months, with no guarantees that places will end up in the right institutions. In the demand driven system universities decide how to respond, using local information about potential interest that is not easily accessible to the bureaucracy. Without prescriptive student place allocations, there is no system-level issue if some universities end up with more students than expected and others fewer. Adjustments occur in the market, avoiding the potential sectoral, regional, employer and professional association political problems of bureaucratic intervention.

## GRADUATE ATTRIBUTES AND EMPLOYMENT

Employer surveys consistently find that graduate job opportunities are missed because employers can find too few suitable applicants. In 2015, more than a quarter of employers reported this problem, and the proportion has never been below 18 per cent.<sup>253</sup> As the graduate employment figure cited earlier suggest, this is rarely because too few people have the relevant qualifications. More commonly, employers find issue with the more general graduate attributes of their applicants. These include communication, teamwork, problem-solving and interpersonal skills. Nearly three times as many employers cite 'communication skills' as one of their three most important selection criteria than 'academic qualifications'.<sup>254</sup>

Universities have broader objectives than job training, and not all employer complaints about graduates should necessarily be remedied by universities. But critical thinking, problem solving and communication skills are graduate attributes that are important to both higher education and employment. While most employers are satisfied with job applicants' written communication skills, more than one in five rated them as less than

<sup>250</sup> Norton and Cakitaki, *Mapping*, 84-91.

<sup>251</sup> See citations in Norton and Cakitaki, *Mapping*, 84.

<sup>252</sup> J. Segal, 'Australian universities are not producing enough STEM graduates', *Australian Financial Review*, 10 August 2016.

<sup>253</sup> GCA, *Graduate Outlook 2015: The report of the 2015 Graduate Outlook Survey, Perspectives on graduate recruitment* (Melbourne: Graduate Careers Australia, 2016): 5.

<sup>254</sup> GCA, *Graduate Outlook*, 19.

good.<sup>255</sup> In teacher education, the issue has led to a literacy and numeracy test being introduced as a condition of professional admission.<sup>256</sup>

Universities have listed their desired graduate attributes for many years. Every university includes communication skills among these attributes.<sup>257</sup> But these attributes are typically not separately taught, verified or rated. Development of general graduate attributes is usually discipline-specific rather than taught separately as general skills applicable across fields and contexts, although this is changing in some universities (see below).<sup>258</sup> As a result, universities do not know whether their graduates have the attributes claimed for them, and graduates have no way of proving what skills they have.

This approach to graduate attributes reflects longstanding practices in higher education. While the vocational education system assesses specific competencies, higher education usually awards overall marks for subjects. Performance on generic skills is embedded in these marks, but their particular contribution is not obvious to students or prospective employers. Assessment based on subjects rather than the course also works against any cumulative measure of skills development.

The higher education funding system entrenches this approach to general skills. Universities are only funded by government for subjects taught as part of qualifications, and apart from student contributions for those subjects there are strict controls on academic fees, including for assessment.<sup>259</sup> Universities can only charge for additional services if they are not essential for a subject or course, and these fees cannot be compulsory. In practice, universities usually fund employability skills development out of their general revenue.

Within these constraints, universities are acting to improve student and graduate general skills. Desktop research found evidence of general curriculum changes (11 universities planned or in progress in September 2016), subjects or online modules that focus on cultivating employability skills (12 universities), work experience outside the university (38 universities with for-credit work integrated learning and 39 with not-for-credit internships). Universities and industry are collaborating to expand and improve on work integrated learning.<sup>260</sup>

Work integrated learning is a favoured strategy. Compared to other employability strategies, it can substantively increase skills, teach students about the workplace, and provide employers with information about students as potential employees. Forty per cent of employers who hire graduates take applicants who have already worked for them.<sup>261</sup>

Although work integrated learning is the most common way of demonstrating graduates' skills to employers, universities also use other ways to provide information.

<sup>255</sup> GCA, *Graduate Outlook*, 21.

<sup>256</sup> ATSL, *Accreditation of initial teacher education in Australia: standards and procedures 2015* (Melbourne: Australian Institute for Teaching and School Leadership, 2015).

<sup>257</sup> L. Martin, *Using assessment of student learning outcomes to measure university performance: towards a viable model*, PhD thesis (Melbourne: University of Melbourne, 2016): 78.

<sup>258</sup> B. Oliver, *Assuring graduate attributes* (Sydney: Australian Learning and Teaching Council, 2011).

<sup>259</sup> Department of Education and Training, *Higher education administrative information for providers February 2015* (Canberra: Department of Education and Training, 2015): 47-49.

<sup>260</sup> Universities Australia, ACCI, AIG, Business Council of Australia, Australian Collaborative Education Network, *National strategy on work integrated learning in university education* (Canberra: Universities Australia, 2016).

<sup>261</sup> GCA, *Graduate Outlook*, 12.

Twenty-five universities have awards or certificates for co-curricular, extracurricular and leadership activities of students (while potentially giving students a point of difference, only seven per cent of employers put extra-curricular activities in their top three selection criteria<sup>262</sup>). Twenty-eight provide ePortfolio software which helps students demonstrate a wider range of activities. One university offers awards or badges for particular graduate attributes.

Under the demand driven system, there are potential enrolment penalties for poor employment outcomes. Employment results by university and course are now available to prospective students on the Quality Indicators for Learning and Teaching (QILT) website, and universities promote their employment outcomes on their websites and through advertising. It is plausible that the demand driven system is encouraging universities to do more for graduate employability. Some employability measures recorded in our desktop research are clearly recent, although we lack a count from before the demand driven system. In September 2016, universities ranged from four to ten employability initiatives and activities, with an average of six.

## OVERALL GRADUATE OVER-SUPPLY

Despite clear strengths of the demand driven system in reacting to the labour market, we are nevertheless left with poor employment outcomes in recent times. Did the system respond ineffectively as employment outcomes trended down to 2014? Public university commencing bachelor degree enrolments increased by 42 per cent between 2008 and 2014. Now the boom years of university enrolments are over. Commencing bachelor degree enrolment growth was only one per cent between 2014 and 2015, the lowest rate for seven years.<sup>263</sup> Early offers data for 2016 suggests another year of about one per cent growth.<sup>264</sup> Arguably the enrolment response should have been faster and larger. But the propositions that the labour market did not need so many graduates and that most students made the right decision to go to university can both be true.

Although recent graduate employment outcomes are poor compared to 2008 and earlier, young people had no easy employment options. The labour market plunged after the global financial crisis and then entered a faltering recovery. Figure 1 shows annual job increases for the professional occupations to which graduates normally aspire, along with job increases for all other occupations. Broader economic forces were affecting all occupations, not just those which graduates sought. Despite periods of low growth in professional employment, in most years professionals increased their share of all jobs. In 1997, 17.8 per cent of all employed persons were professionals; in 2015 that figure was 22.9 per cent. In 2014 and 2015, around half of all job growth was in professional occupations. Young people completing vocational education diploma qualifications experienced worse employment difficulties than university graduates.<sup>265</sup> Despite their poor employment outcomes by historical standards, most

<sup>262</sup> GCA, *Graduate Outlook*, 19.

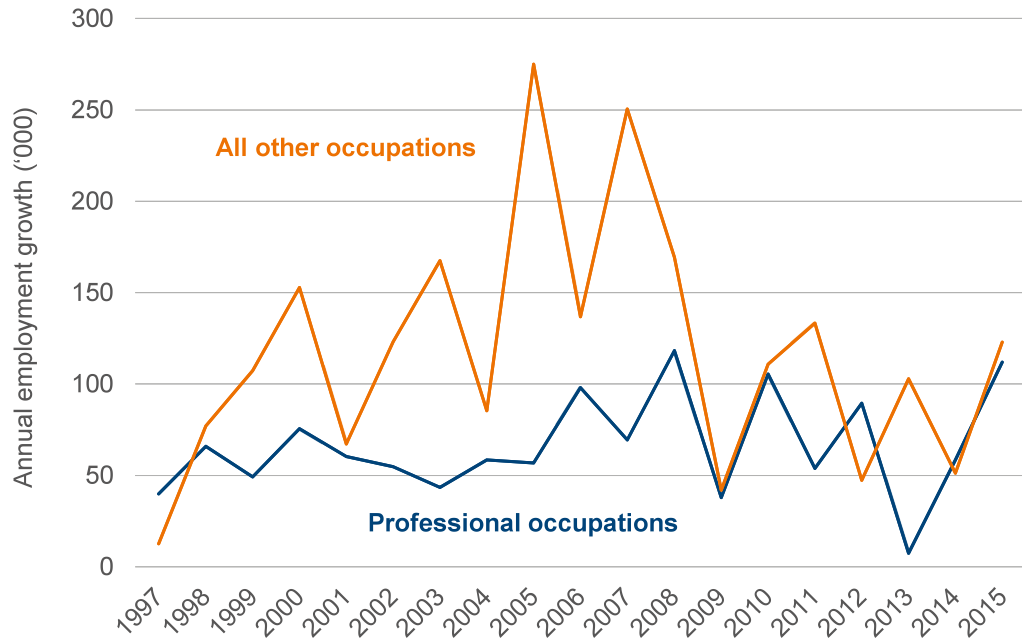
<sup>263</sup> Department of Education and Training, *uCube*.

<sup>264</sup> Department of Education and Training, *Undergraduate applications 2016*, 23.

<sup>265</sup> Direct comparisons are difficult, but for 2008-15 diploma holders six months after completion unemployment has averaged 15 per cent and full-time employment has averaged 34 per cent. For bachelor degree holders four months after completed, unemployment has averaged 9 per cent and full-time employment has averaged 48 per cent: NCVET, *VOCSTATS: Student outcomes survey* (Adelaide, National Centre for Vocational Education Research, 2016); GCA, *Graduate Destinations*, various years.

recent higher education students were still minimising their risks and maximising their opportunities, given their realistic options.

**Figure 1: Annual employment growth, professional and all other occupations 1997-2015**



Source: Australian Bureau of Statistics, Labour force, Australia, detailed quarterly, May 2016, Cat. 6291.0.55.003. Quarterly figures have been averaged.

Although most students made prudent further education decisions, some probably did not. Despite poor recent employment outcomes for diploma graduates, the relationship between vocational and higher education remains an issue in the demand driven system. Increasing numbers of young people are choosing higher education over vocational education.<sup>266</sup> Average outcomes in either higher or vocational education are not necessarily a good guide to particular prospective students, and the pathways and prospects of low to mid-ATAR young people need more attention. Attrition rates clearly increase as ATAR goes down, raising the risk that students will not acquire a degree.<sup>267</sup> For lower-ATAR students who complete, we need to check whether they are over-represented among those not securing high-skill work. For them, a diploma or Certificate IV course may offer similar or better employment opportunities at a lower cost.

## THE FUTURE

We cannot know exactly what skills graduates of the future will need. We need a system that reacts efficiently to changes in work affecting higher education.

In most cases, the demand driven system offers universities the flexibility and incentives needed to respond to labour market needs. We see this in their behaviour

<sup>266</sup> P. Noonan, *A new system for financing Australian tertiary education* (Melbourne: Mitchell Institute, 2016): 6.

<sup>267</sup> Department of Education and Training, *Completion rates of domestic bachelor degree students: a cohort analysis, 2005-2013* (Canberra: Department of Education and Training, 2015).



since 2008, making more student places available in areas of skills shortage, and increasing the attention paid to general graduate attributes. The pre-demand driven system could react to skills shortages, but caps on student places and funding disincentives hampered its response mechanisms. Under demand driven funding, skills shortages have resulted in increased enrolments.

Although not yet causing major problems, the system of per-student funding may in future weaken mechanisms for meeting skills needs. If discipline-level funding rates fall below costs universities may decide against responding to demand. Funding rates are being reviewed at the time of writing. As noted, funding subjects embedded in qualifications does not directly support the teaching or verification of general skills valued by employers.

While some people question letting school leavers influence skills supply, students have reflected broad occupational employment trends in their course choices. But not all prospective students have the information needed to make the best possible choices. If more students realised that they may never complete a bachelor degree course, or struggle to get a professional job if they do complete, fewer may choose higher education. Capping the number of student places for universities below current levels would steer more students towards vocational education. But capping would have consequences for students who still get accepted, as well as those who do not. The system would lose flexibility in responding to their needs.

Helping students make better choices rather than limiting their choices is the better way to respond to recent problems in graduate employment. The government has already improved student information through the MySkills and QILT websites. But more could be done to individualise the advice we give prospective students. We can say more about the choices between rather just than within vocational and higher education. We can say more about how further education risks and benefits vary according to prior academic performance and other personal characteristics. The better informed demand is, the better a demand driven system will perform.

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