Systematic review

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students?

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Abbreviations

ARDL	Autoregressive distributed lag
ASEAN	Association of Southeast Asian Nations
AusAID	Australian Agency for International Development
CCRTVU	China Central Radio and TV University
Cedefop	European Center for the Development of Vocational Training
DELES	Distance Education Learning Environments Survey (>>>)
DFID	Department for International Development (UK)
EHEA	European Higher Education Area
GDP	Gross domestic product
GEP	Gender Equity Project
GPA	Grade point average
GSSLP	Government-Subsidized Student Loan Program (China)
HLM	Hierarchical linear model
IBGE	Brazilian Institute of Geography and Statistics
ICT	Information and computer technology
IMF	International Monetary Fund
IMG	Individual Mobility Grant (TEMPUS)
ISCED	International Standard Classification of Education
IV	Instrumental variable
JEP	Joint European Projects (TEMPUS)
JICA	Japan International Cooperation Agency
JICA-RI	JICA Research Institute
LMIC	Low- and middle-income countries
MEDA	Mediterranean Development Assistance (European Commission)
NGO	Non-governmental organisation
NORAD	Norwegian Agency for Development Cooperation
NOUN	National Open University of Nigeria
NUC	National Universities Commission (Nigeria)
Nuffic	Netherlands organisation for international cooperation in higher education
OAU	Obafemi Awolowo University (Nigeria)
ODL	Open and distance learning
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
PNAD	Pesquisa Nacional por Amostra de Domicílio (Brazil)
PPP	Public–private partnership
PSTI	Private sector training institutes
SCM	Structural and Complementary Measures (TEMPUS)
SLF	Student Loan Fund (Thailand)
SOFES	Sociedad de Fomento a la Educación Superior / Society for the Promotion of Higher Education (Mexico)
TACIS	Technical Assistance to the Commonwealth of Independent States (European Commission)
TEMPUS	Trans-European Mobility Scheme for University Studies (European Commission)
TICAL	Thailand Income Contingent Allowance and Loan
TVET	Technical and vocational education and training
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development

Abstract

Background: How to effectively increase access to and quality in higher education in developing countries is a highly debated topic. There is no consensus as to what policies or provisions best increase access to higher education, nor is there a firm understanding of how each form or provision or policy impacts the quality of higher education. Empirical evidence on these issues is also lacking. Moreover, while a large body of literature on the implementation of such policies and provisions exists for the developed world, little evidence exists for the developing world, resulting in a comparative dearth of literature that analyses the impact of such policies or provisions for developing nations.

Methods: We systematically reviewed research available in the English language on the impact of higher education policies and methods of provision on access, quality and gender issues in developing countries. We also examined the potential differences of these outcomes in terms of gender. We discussed the types of outcomes for which there is evidence and addressed gaps in the evidence base. We selected studies for inclusion based on the relevance of the study method and context, as well as study quality. Given the small number of quantitatively rigorous studies addressing the review question, we also included a number of qualitative and descriptive studies in our review. We synthesised the studies using thematic summaries, using quantitative studies as the basis for our analysis and qualitative studies as supplemental evidence.

Results: We identified 175 studies in total. Twenty-four of these studies were regression-based studies, and the remaining 151 were qualitative or descriptive studies. The majority of the studies fell into six main categories: affirmative action; cross-border, distance and open education; financial policies/programmes (including cost-sharing policies and student loan programmes); technical and vocational education and training (TVET); and institutional type. Other studies did address topics not covered by these categories such as part-time education; quality assurance; and academic advising. Eight of the included studies, moreover, did not address any specific policy (or addressed multiple policies), but focused on increasing access for certain subgroups such as females or disabled students.

Conclusions: Although the identified studies failed to reach a firm consensus on the policies most effective for increasing access to and the quality of higher education, several of them nonetheless demonstrated positive effects for the interventions studied. Moreover, while many studies lacked evidence on how these outcomes varied by gender, several did address this issue and highlighted key areas of concern for improving not only access to and the quality of higher education, but for promoting equity as well.

We find positive effects for affirmative action in increasing access for targeted subgroups but also noted that these policies may have unintended negative consequences. Financial programmes and policies such as fee-sharing, dual-track tuition policies and different types of student loans may also positively increase access to higher education while shifting some portion of the costs of higher

education from the government to the student. Careful consideration, however, must be taken to formulate the right mix of policies to ensure access to lower-income students. The cost of such programmes and their long-term sustainability must also be taken into account.

We find little evidence for the impact of cross-border and transnational provision and TVET in increasing access to and the quality of higher education. A few randomised trials of vocational education programmes, however, did show significant gains to lower-income women who participated.

Future Research: The scarcity of robust evidence on this topic for developing countries demonstrates the need for improved data. Studies using larger datasets that span multiple institutions are needed to yield more robust and generalisable findings for some types of interventions. More studies that use randomised trials or natural experiments to measure the impact of a particular method of provision or policy for treated versus control groups would also be valuable. In cases where this is not possible, comparative studies could offer some evidence on the impact of policy interventions. Finally, additional evidence on outcomes of interest, such as enrolment, retention, graduation and employment, is needed. Because context matters, however, it is not always possible to identify 'one size fits all' solutions.

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Executive summary

Background

Demand for higher education has risen rapidly in recent years, particularly in developing countries. In response, governments and institutions have implemented a number of mechanisms to promote and maintain access to higher education. Specific mechanisms may focus on providing education via public sector expansion or the implementation of policies and laws that foster the formation and growth of private sector institutions. Cross-border provision and consortia or partnerships with institutions abroad also increase access to higher education by capitalising on the excess capacity of foreign providers. Additionally, innovative and often scalable distance or virtual learning formats have been used to expand access to higher education in the developing world.

While the aforementioned tools increase the capacity of higher education systems, financial instruments also play a key role in facilitating access to these systems. In an era of dwindling public budgets, governments have often found themselves unable to support free public education for an increasingly large student body and have therefore found it necessary to introduce various fee policies and cost-sharing mechanisms into their public systems. Financial mechanisms also provide support for students studying at private universities who would not otherwise be able to afford a private education. Financial policies, such as student loan and grant programmes, have thus played a key role in promoting higher education access while also improving the financial sustainability of the system. By providing funding for students who might otherwise not be able to afford fee-based education, they also work to maintain access and promote equity.

Some governments have also implemented programmes aimed at promoting equity in access. Affirmative action policies, for instance, target historically disadvantaged groups such as females and minorities. Additionally, alternative formats such as open and distance learning (ODL) or technical and vocational education not only expand education, but also promote access and equity in access among non-traditional student groups.

In many developing countries, the rapid growth of higher education has led to concerns over quality. As governments expand their higher education systems and offer new formats for higher education such as ODL, it is important to examine the impact of these different forms of provision on quality and how quality may vary systematically by the type of provision or other pertinent factors.

Objective

This systematic review aims to synthesise the evidence on the effectiveness of various approaches to higher education provision in increasing access, quality and completion for students in developing countries. Given the complex nature of higher education programmes and policies that often operate at the national or system level, much of the research on higher education provision and programmes

in developing countries is qualitative. However, more recently, a number of quantitative impact evaluations of particular programmes and policies have been conducted. Because of the large number of studies that employ a diverse set of methods to explore various aspects of higher education provision, this systematic review incorporates rigorous criteria for the inclusion of papers. We classified included studies into Tier One studies, which represent the highest quality and most robust evidence, and Tier Two studies, which provide acceptable but less methodologically rigorous evidence.

The aim is to synthesise the evidence on the question of interest to this study in a manner that ensures that the findings are robust and useful to policy-makers, university leaders, government officials, aid agencies and others in identifying proven and promising strategies for improving higher education outcomes in contexts that are similar to their own. The challenge for this study was to identify the evidence that most robustly and appropriately addresses questions regarding the effectiveness of different approaches to higher education provision in increasing access, quality and completion for students in developing countries and examines how these outcomes differ by student gender.

To assist policy-makers and other stakeholders in sorting out the most rigorous evidence on higher education policies in developing countries, we do three things. First, we use **bold text** to highlight statements supported by evidence from Tier 1 studies. Specifically, we highlight in **bold text** all in-text citations for Tier 1 studies in the synthesis results (Sections 5.1–5.7). We also highlight statements supported by Tier 1 evidence with **bold text** throughout the document. Citations of Tier 2 studies and statements only supported by Tier 2 evidence are included, but are not highlighted with bold text.

Second, for each synthesis topic, we include a table summarising the characteristics and findings of Tier 1 studies. The purpose of these tables is to help the reader quickly and easily access key information on the identified Tier 1 studies for each included topic. Finally, for each topic in our synthesis we also include a summary box identifying the main points identified in our synthesis results, with a particular focus on the most robust and policy-relevant findings found in multiple studies. In contrast to the tables summarising Tier 1 evidence, these summary boxes include evidence from both Tier 1 and Tier 2 studies. The purpose of these boxes is to help the reader easily identify the main points drawn from evidence on each topic. Statements supported by Tier 1 studies, moreover, are also **in bold** to help the reader identify the most robust evidence.

Methods

Our protocol was peer reviewed and published in July 2012. During the course of this review, we drew upon the expertise of key users and stakeholders for input. We also asked them to suggest relevant grey literature[1]. We requested access to unpublished literature on donor funded higher education initiatives such as scholarships, capacity-building efforts and support for consortia and networks.

In order to identify relevant literature, we systematically reviewed all research available in the English language on the impact of higher education policies and methods of provision on access, quality and gender issues in developing countries. Our searches included subscription and non-subscription databases, regional sources, Google Scholar, individual journals, key websites and other grey sources.

We selected studies for inclusion based on the relevance of the study method and context, as well as study quality. Given the small number of quantitatively rigorous studies addressing the review question, we also included a number of qualitative and descriptive studies in our review. We synthesised the studies using thematic summaries, with quantitative studies as the basis for our analysis and qualitative studies used as supplemental evidence. In our synthesis, we examined the potential differences of these outcomes in terms of gender. We also discussed the types of outcomes for which there is evidence and addressed gaps in the evidence base. Although the limited base of high-quality evidence made it difficult to address any of our review questions comprehensively, we were able to gain a deeper understanding of the issues and outline some implications for policy and practice.

Findings

We identified 175 studies in total. Twenty-four of these studies were experimental or quasi-experimental studies, which we classified as Tier 1 studies, and the remaining 151 were qualitative or descriptive studies, which we classified as Tier 2 studies. The majority of these studies fell into six main categories: affirmative action; cross-border, distance and open education; financial policies/programmes (including cost-sharing policies and student loan programmes); technical and vocational education and training (TVET); and institutional type. Other studies did address topics not covered by these categories such as part-time education; quality assurance; and academic advising. Eight of the included studies, moreover, did not address any specific policy (or addressed multiple policies), but focused on increasing access for certain subgroups such as females or disabled students.

Despite the limited base of high-quality evidence, the review identifies several examples of provision and policies to increase access to and the quality of higher

[1] Informally published documents such as technical reports or working papers.

education in developing countries. While their **overall effects on the outcomes of interest are ambiguous**[2], the review notes **positive effects for many of the interventions**. We also found little evidence of the differential effects of higher education programmes and policies by gender.

Affirmative action is one way to increase enrolment for students who may have faced discrimination due to their race, caste, gender or geographical location. Overall, most of the studies addressing this issue indicated that **affirmative action policies can increase access to higher education for the targeted groups but in doing so may displace groups that are not targeted but are nonetheless disadvantaged, such as females.** In addition, admitting **less-qualified applicants under affirmative action may confer some benefit on those admitted, but perhaps less of a benefit than the other populations who are displaced by the policy would have received.**

Several financial programmes and policies proved promising for increasing access to higher education in developing nations. Many countries have operated a traditional model of publicly supported universities charging no tuition, but rationing access in some way since they cannot afford to meet all student demand. **The studies showed that these traditional approaches disproportionately benefited students from wealthier families.** Recently, countries have implemented a variety of cost-sharing strategies.

One way to ration publicly funded education and provide revenue for the system is through dual-track tuition policies, where the government provides a limited number of free places and institutions can charge fees for remaining places. The studies revealed that these policies may effectively reduce the government's burden of financing higher education without discouraging enrolment as long as students can finance their enrolment. While students understandably preferred free education, some studies found that students were nonetheless willing to pay for quality.

Private provision of higher education is another identified solution. A system that includes both public and private higher education institutions may enable governments to better meet student demand and to shift some of the burden of providing education to private providers. Private institutions, however, are often more expensive than public institutions. Their quality, furthermore, also varies greatly. Grants, scholarships and other subsidies are therefore often necessary to ensure that private education is accessible to more than just the wealthy. Countries should carefully consider the best combination of public and private institutional supply along with financial aid to enable access. Quality assurance

[2] Bold text indicates statements supported by the most robust, Tier 1, studies.

measures or restrictions on government-backed loans, moreover, may be necessary to ensure some level of quality among private institutions.

Student loans, including both standard and income-contingent loans, are an increasingly common tool for improving access while managing limited government budgets. **The studies demonstrated that loans given to needy students may increase their ability to cover their living expenses while pursuing higher education, decrease the number of hours they have to work and increase their grade point averages. While important, however, these policies come with potentially large and often hidden subsidies due to accumulated interest costs and eventual loan defaults. Many countries may be taking on large future liabilities that will burden future generations at both the individual and societal level.** In addition, many developing countries may lack the institutional structures (such as payroll tax collections) needed to support student loan systems.

Studies that examined various other provisions and policies yielded less conclusive results. Studies on cross-border and transnational provision provided little evidence on their effectiveness in increasing access or quality; however, they did suggest that it is important to incorporate students' perspectives when evaluating cross-border or transnational projects. Studies that gathered student survey data revealed some useful information with regard to how students define 'quality' and what matters to them.

Studies on technical and vocational education noted differences in enrolment in technical subjects for men relative to women. These differences may be due to factors such as inadequate preparation at the secondary level or cultural attitudes towards jobs for which women are suited. They did not, however, offer any concrete solutions to these problems. A few randomised trials **of vocational training programmes showed significant employment and wage gains to lower-income women who participated.** Although these studies were too limited to generalise from, more research could confirm how general these effects may be.

Conclusions and implications

In the following section we outline a number of implications for policy and research.

Implications for policy

This study has several policy implications. First, programmes and policies should be crafted to ensure that in attempting to solve one problem, they do not exacerbate others. In an effort to increase access for certain racial minority groups, for instance, one affirmative action programme discussed in this review inadvertently decreased female participation in higher education.

One way to combat unintended effects is to coordinate policy actions. When implementing various cost-sharing schemes, for instance, programmes to provide scholarships or other subsidies to students on the basis of needs can help ensure

access for disadvantaged groups while still shifting some portion of the costs of higher education from the government to the student.

Second, in formulating various programmes to promote access to higher education, careful consideration needs to be given to their distributive effects. Traditionally, students from wealthier families tend to study at universities at higher rates. Care thus needs to be taken to ensure that policies intended to increase access to higher education (such as free tuition policies) do not disproportionately benefit higher-income families and, in turn, exacerbate income inequality.

Finally, the review demonstrates that it is important to consider the unique historical, political and economic landscape of each country when setting policies to increase access to or the quality of higher education. For example, ODL programmes may not work well in countries where many students lack internet access or even a computer. In other countries this method of provision may fail to work because of strong cultural preferences for traditional education or the perception that online education is lower quality. What works in one country may not work in another due to differences in infrastructure, historical development and cultural attitudes.

Implications for research

The scarcity of robust research on this topic for developing countries indicates the need for improved data and more rigorous methods. Research that makes use of larger datasets that span multiple institutions is needed to yield more robust and generalisable findings for some types of interventions. More research that uses randomised trials or natural experiments would greatly improve understanding of the net impact of a particular method of provision or policy. In cases where this is not possible, comparative studies could offer some evidence on the impact of policy interventions. Finally, additional evidence is needed on some important outcomes of interest, such as enrolment, retention, graduation and employment.

This systematic review identifies some promising approaches to improving access to higher education in developing countries, and also highlights significant limitations in the evidence base. More robust, generalisable research should help to improve understanding of the promise of these approaches. At the same time, further research must also examine the country-specific factors that will determine which approaches can be applied most successfully in different contexts.

1. Background

1.1 Aims and rationale for review

Demand for higher education has risen rapidly in recent years. In 2009, there were nearly 153 million students enrolled at universities around the world, representing an increase of over 50 percent in just nine years (Labi 2009). Notably, a large portion of this growth has been concentrated in the developing world, such that today half of students currently enrolled at higher education institutions are from developing countries (Bloom and Rosovsky 2001).

Much of the rapid growth in the higher education sectors of developing countries occurred during an era of dwindling government budgets precipitated primarily by the Structural Adjustment Programs imposed by multilateral lending organisations like the World Bank and the International Monetary Fund (IMF). In an effort to remain financially solvent, traditional public institutions in developing countries were forced to rely more heavily on student fees and tuition as well as the entrepreneurial activities of their staff (Abeli 2010, Lee and Healy 2006). However, despite these efforts to boost funds, it is widely held that quality in the public sector significantly declined during this era.

Despite limited resources for public higher education, governments and institutions developed a number of mechanisms to maintain access to higher education. Specific mechanisms include need-based scholarships and fee policies, large-scale student loan programmes, and scholarships for students studying both domestically and abroad (Abeli 2010, Lee and Healy 2006).

Increases in student fees, decreases in quality, and the inability of the public sector to meet the rapidly increasing demand for higher education paved the way for the private sector to enter the market for higher education in developing countries. A number of arrangements emerged including public–private partnerships, distance or virtual learning, cross-border provision, and consortia or partnerships with institutions from the North. During this era, private and for-profit institutions also rapidly expanded across the developing world. Scholars have referred to this expansion of primarily Northern institutions into the developing world as the ‘Era of Internationalisation’ (Abeli 2010, Lee and Healy 2006, Miranda 2008).

Recently, there has been resurgence in support for higher education as a crucial tool for development. It is becoming increasingly recognised that a robust higher education sector is needed to prevent brain drain and develop tomorrow’s leaders and innovators. Domestic budgets for higher education have increased across the developing world, and there is renewed support for expanding access to higher education by lowering or eliminating student fees. Moreover, there is renewed support from traditional donor agencies like the United States Agency for International Development (USAID), the UK’s Department for International

Development (DFID), the Australian Agency for International Development (AusAID), the Netherlands organisation for international cooperation in higher education (Nuffic) and the Norwegian Agency for Development Cooperation (NORAD). These institutions are increasingly investing in programmes to promote access and increase quality (Creed et al. 2012). Specific programmes for increasing access include scholarships, training courses, distance learning initiatives, and expansion of institutions in underserved areas (Creed et al. 2012). Programmes aimed primarily at increasing quality include the sponsorship of consortia and networks with Northern institutions, and institutional development and capacity-building programmes (Creed et al. 2012).

Juxtaposed upon the complex higher education landscape in developing countries is an equally complex set of gender issues that vary considerably over time and across regions. Fostered by a complex web of cultural, psychological, economic, historical and political factors, gender imbalance in higher education is widespread across the developing world (Teferra and Altbach 2004). In many cases, gender imbalances are magnified at higher quality and public institutions (Mama 2003). A number of governments and institutions have developed programmes and policies specifically to address gender issues. Several African countries including Ethiopia, Tanzania, Uganda, Zimbabwe and Malawi have instituted explicit gender-based affirmative action policies, many of which operate through the cut-off score for admission to public universities (Teferra and Altbach 2004). Others have instituted gender-based scholarships and stipends in order to induce females to enrol in college. Finally some have developed specific policies targeting female issues, such as programmes targeting gender-based violence or the readmission of female students after pregnancy (Masanja 2010).

Despite gains in enrolment shares for females across the developing world, there are substantial gender inequities within institutions as well. For example, females are much less likely to enrol in mathematics, science and business, and more likely to enrol in teaching and nursing. There are also significant gender imbalances on university faculties (Mama 2003). In some cases, governments and institutions have instituted affirmative action and scholarship programmes engineered to drive females into traditionally male dominated fields (Masanja 2010).

This systematic review aims to synthesise the evidence on the effectiveness of various approaches to higher education provision in increasing access, quality and completion for students in developing countries. Given the complex nature of higher education programmes and policies that often operate at the national or system level, much of the research on higher education provision and programmes in developing countries is qualitative. However, a number of quantitative impact evaluations of particular programmes and policies have been conducted. Given the large number of studies that employed a diverse set of methods to explore various aspects of higher education provision, this systematic review incorporates rigorous criteria for the inclusion of papers (for details on the methodological approach see Section 1, Methods used in the review).

The aim is to synthesise the evidence on the question of interest to this study in a manner that ensures that the findings are robust and useful to policy-makers, university leaders, government officials, aid agencies and others in identifying proven and promising strategies for improving higher education outcomes in contexts that are similar to their own. The challenge for this study was to identify the evidence that most robustly and appropriately addresses questions regarding the effectiveness of different approaches to higher education provision in increasing access, quality and completion for students in developing countries and examine how these outcomes differ by student gender (IMF 2010).

1.2 Definitional and conceptual issues

In this section, we define the concepts of 'approaches to higher education provision', access, quality, completion and developing countries. Due to the key role of gender in higher education, we discuss gender issues in detail and include a number of gender specific outcomes in our review.

For this review, we define higher education as all types of education (academic, professional, technical, artistic, pedagogical, long distance learning, etc.) delivered by universities, technological institutes, vocational schools, trade schools, career colleges and other similar institutions, which are normally intended for students having completed a secondary education, and whose educational objective is the acquisition of a title, grade, certificate, or diploma of higher education (Dias 1998).

We measure access using enrolment rates or rates of degree attainment within the general population, and we consider measures of access for marginalised groups, including but not limited to class, income and gender. Following Astin (1985) and others, we define quality using a student perspective, and we use student-centered performance indicators as measures of quality. Note that our definition of quality subsumes completion, as institutions do not provide quality unless they drive students to completion.

In categorising approaches to higher education provision, we distinguish between 'methods of provision' and 'policies'. We define a 'method of provision' as the primary means by which an institution is governed, while we define a 'policy' as a specific intervention that is designed by governments, systems, institutions, aid agencies and/or donors to achieve some outcome. For the purposes of this review, we limit our scope to policies that are designed to target access, quality or gender specific issues.

1.2.1 Access

Access to higher education is commonly defined as 'the ability of people from all backgrounds to access higher education on a reasonably equal basis' (Usher and Medow 2010, Wang 2011). This definition is comprehensive in scope and implies that students of all backgrounds must not only be 'reasonably' able to take advantage of educational opportunities, but must be adequately prepared and equipped to do so as well in order for the system to be considered 'accessible'. To

this end, scholars have noted several imbalances in the opportunity for individuals to access education based on geographical region, rural versus urban environment, social class, gender and ethnicity (Fields 1980). Other scholars have focused on various issues that make higher education impractical or overly burdensome to access including inadequate IT capabilities, inadequate facilities and political instability (Bunoti 2011).

Often at the forefront of access issues, however, have been those pertaining to the ability of students from traditionally marginalised groups, such as women, students from low socio-economic status backgrounds, and students from rural or disadvantaged regions, to finance their education (Birdsall 1996, Buchmann and Hannum 2001, King and Hill 1998, Psacharopoulos 1986). As higher education budgets have declined across the developing world, so have traditional policies of zero student fees and generous living stipends. While public institutions in developing countries continue to push for universal access, their ability to meet that goal has significantly diminished. They now use a mix of need-based scholarships and student loans to promote access for marginalised students. While private sector alternatives have filled the void in some respects, it is unclear whether all qualified students in the developing world have access to quality higher education.

While we measure access in terms of enrolment rates and rates of degree attainment, we recognise that access is intimately linked to class, income, gender and other factors. We thus consider enrolment and degree completion rates by class, income and gender. Through the course of our systematic review, we also include enrolment and degree attainment rates by those factors as measures of access as well, when applicable. Finally, where possible, we also consider statistics about the number or percentage of students who meet admission and/or ability to pay criteria as measures of access.

1.2.2 Quality

Quality in higher education is relative from a stakeholder perspective, and may differ for students, academics, policy-makers, employers, faculty, the general public and other groups. For example, quality to the government sector may be tantamount to efficiency: do institutions produce graduates and research efficiently, and do they provide a net return on a social investment? On the other hand, quality to a student must consider the quality of instruction and resources he or she is provided with, as well as the likelihood that he or she will find employment in his or her chosen field.

A number of scholars and practitioners have noted the prime importance of the student perspective in evaluations of institutional performance (Astin 1985, Tam 2001). Given the prime importance placed upon the student perspective in the literature, as well as the focus of our systematic review question on ‘quality for students in developing countries’, we define quality according to the student perspective. As such, we concentrate on student-focused key performance indicators. These include but are not limited to quality of instruction and resources; student–faculty ratios; student satisfaction; completion rates for

degrees, certificates and other programmes; postgraduate employment and earnings; and transitions to further education including graduate degrees. Where available, we also focus on value-added measures of student learning. Note that this definition of quality subsumes completion; an institution is not high quality unless it drives students through to completion.

Finally, it is important to recognise that quality is intimately linked to access. In many cases in the developing world, marginalised students are the most likely to choose relatively low-cost higher education providers such as for-profit institutions, vocational and training programmes, and virtual or distance learning-based platforms, where quality is often lacking. If these institutions effectively increase access to low-quality education, their programmes may or may not be a net benefit to students, and may in fact contribute to inequality. A fundamental goal of this systematic review is to disentangle the effects of methods of provision and policies on access and quality in an effort to weigh up the overall impact of these programmes.

1.2.3 Gender issues

Fostered by a complex web of cultural, psychological, economic, historical and political factors, gender imbalance in higher education is widespread across the developing world (Teferra and Altbach 2004). In many cases, gender imbalances are magnified at higher-quality and public institutions. There are substantial gender inequities within institutions as well. For example, females are much less likely to enrol in mathematics, science and business, and more likely to enrol in teaching and nursing. There are also significant gender imbalances in university faculties. Other major concerns include issues of gender-based violence and widespread sexual discrimination in some developing countries (Mama 2003).

Given the complex gender issues in higher education that differ considerably over time and across developing countries, wherever possible, we synthesise access and quality outcomes by gender. We also examine the gender-related indicators and outcomes such as the share of females in higher education institutions or the percent of females admitted to institutions as a result of affirmative action policies, for example.

1.2.4 Developing countries

Several organisations classify countries according to their level of economic development. For the purposes of this systematic review, we restrict attention to research conducted on ‘emerging and developing countries’, as defined in the World Economic Outlook, which is published by the IMF (IMF 2010). The World Economic Outlook uses three main categories to place countries within the ‘emerging and developing’ category, i.e. per capita income, export diversification, and degree of integration within the global financial system. Note that the resource-rich countries of the Middle East generally fall within the ‘emerging and developing’ category because of their lack of export diversification. Finally, classification is made based on pooled data over several years, to avoid reclassification based on year-to-year fluctuations.

In order to better focus the review on those countries most relevant to AusAID's mission, namely 'to help people overcome poverty', we exclude from the list of emerging and developing countries those classified as high-income countries by the World Bank. This eliminates following countries from our analysis: the Bahamas, Bahrain, Barbados, Brunei Darussalam, Croatia, Equatorial Guinea, Hungary, Kuwait, Oman, Poland, Qatar, Republic of Korea, Saudi Arabia, Trinidad and Tobago, and the United Arab Emirates.

A complete list of included countries is given in Appendix 1.2.

1.2.5 Higher education policies

Governments, donor agencies, and higher education systems and institutions develop policies to address specific goals and aims. For the purposes of this review, we focus on policies that address access, quality or gender-specific issues. We include all policies that address at least one of these outcomes and have a sufficient research base that meets the quality standards set for this review to merit inclusion. A non-exhaustive list of policies that potentially meet these categories (along with the relevant outcomes they are likely to impact on) includes:

- Access (scholarships; student loans)
- Quality (curriculum development; peer tutoring and mentoring programmes; capacity building and consortia)
- Gender issues (outreach and support offices for female students; programmes to prevent gender violence)
- Access and quality (expanding 2-year, certificate, and vocational programmes; modular and flexible courses; internship programmes)
- Access and gender issues (gender-based scholarships)
- Access, quality and gender issues (affirmative action)

1.2.6 Methods of provision

We define a method of provision of higher education as the primary means by which the institution is governed. In this review, we attempted to be as broad as possible with our search. Accordingly, we considered methods of provision that fell under (but were not limited to) the following categories: public institutions and systems, private and blended models, and various models for cross-border education. Ultimately, we ended up obtaining information for the following categories:

- Public institutions and systems, including: degree-granting institutions; vocational programmes; and two year degree and certificate-granting programmes
- Private and blended models, including: private non-profit institutions; private for-profit institutions; and public-private partnerships

- Cross-border models, including: attending institutions in other countries; consortia, networks, and partnerships; open universities; and virtual or distance-based learning campuses.

1.3 Policy and practice background

After years of post-War growth, the public higher education systems in many developing countries started to decline in the 1980s (Abeli 2010, Didriksson 2008). Several factors contributed to the decline. First, the wide imposition of World Bank and IMF Structural Adjustment Programs, which required recipient nations to significantly cut back government spending, led to significant reductions in budgets for higher education. Faced with declining national budgets and strong pressures from the World Bank and IMF to increase primary sector enrolment, developing countries shifted funds away from higher education and towards the primary sector. At the same time, citing concerns that higher education primarily benefited the elite, major donor organisations such as USAID, DFID, Nuffic and AusAID began to shift their funds towards the primary sector where benefits would be more universal (Abeli 2010, Teferra and Altbach 2004).

Faced with dwindling resources, public higher education institutions and systems developed a number of innovative responses to remain financially solvent. Inevitably, much of the burden was shifted towards students in the form of fee policy. The majority of institutions had minimal fees prior to Structural Adjustments[3], but during the 1980s and 1990s, many began to charge significant fees to students. Many offered need-based scholarships to shift the burden towards the students with the highest ability to pay. Others developed large-scale student loan programmes to ensure that all students could have access to public higher education (Pillay 2010). In some cases, significant pressure was placed upon institutions to generate revenue internally from research grants and product development and licensing.

Despite efforts to recoup some lost revenue from students and entrepreneurial endeavours, most public institutions suffered, and quality declined. Policy reports from the era cite wide-scale concerns with the quality of academic staff, facilities and teaching materials (Abeli 2010, Teferra and Altbach 2004).

The lack of funding and decreasing quality opened the door for private providers to develop viable and cost-effective alternatives to the traditional public higher education sector. Beginning in the 1980s developing countries began formally sponsoring public–private partnerships (PPPs) to develop new or expand existing

[3] Structural adjustments are the policies implemented by the IMF and World Bank in developing countries that place conditions on getting new loans from these institutions, or obtaining lower interest rates on existing loans. The corresponding Structural Adjustment Programs are created with the goal of reducing the borrowing country's fiscal imbalances, developing more market-oriented economies and promoting trade and production.

higher education institutions and systems (Abeli 2010, Teferra and Altbach 2004). At the same time, international private and for-profit institutions began to expand rapidly across the developing world. In some cases, institutions established formal partnerships and consortia with institutions from the North (Knight 2005, Teferra and Altbach 2004). Scholars have often referred to this era of higher educational development as the 'Era of Internationalisation', and the verdict on its success is yet to be determined (Knight 2005). Moreover, the rapid expansion of the private sector has led to concerns over quality and monitoring, and in recent years, we have witnessed the rapid development of international accreditation and assessment bodies for higher education (Pires and Lemaitre 2008).

In more recent years, developing countries and donor agencies alike have come full circle, again embracing the notion that higher education is fundamental for development (Abeli 2010, Creed et al. 2012, Teferra and Altbach 2004). Higher education budgets have increased substantially at the same time as donor agencies have renewed their investments in higher education. Specifically, donor agencies have invested heavily in education and training programmes, curriculum development (particularly via distance learning and technology-based mechanisms), scholarship programmes, consortia and networks, and institutional development and capacity building (Creed et al. 2012). Researchers and donor agencies have formally evaluated a number of these efforts; the associated reports were screened for inclusion in this systematic review.

Other policies have been developed to address gender imbalance and other gender-related issues in higher education. These include gender-based affirmative action policies, scholarships and stipends. Some of these programmes are meant to increase overall female enrolment, while others are targeted on enrolment in traditionally male dominated disciplines like mathematics, science, engineering and business. Finally, a number of policies have been developed to address specific gender issues, such as gender violence and reintegration of females after pregnancy (Masanja 2010).

2. Methods used in the review

2.1 User involvement

RAND researchers have established networks both with practitioners working on various higher education provision efforts in Latin America, Asia and Africa, and with donors and policy-makers in donor and developing countries (including USAID, World Bank, the European Commission, and several national governments). This network, together with that of AusAID, served as a source of relevant background studies and will provide a launching pad for the dissemination of review findings. We began our project by sending a project description to key institutions, government agencies and non-governmental organisations (NGOs) within RAND's network including the World Bank, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Inter-American Development Bank and USAID. We asked these key users and stakeholders for input and relevant grey literature. Moreover, since many of the evaluations of donor funded programmes are not publicly available, we requested access to all unpublished evaluations and reports of donor funded higher education initiatives such as scholarships, capacity-building efforts, and support for consortia and networks.

2.2 Identifying and describing studies

2.2.1 Defining relevant studies: inclusion and exclusion criteria

Eligible for inclusion in the review were all English-language[4] research studies that gathered empirical data, such as surveys, before–after studies, controlled clinical trials or randomised controlled trials for effectiveness studies and cost-effectiveness studies such as cost–benefit analyses, cost-minimisation analyses or cost-utility analyses. Note that this definition includes largely qualitative research like case studies of a policy based primarily on interviews and focus groups so long as some quantitative data on a measure of access or quality are brought to bear on the issue. Qualitative data were used only to explain the findings of the quantitative assessments of access. Studies presenting only qualitative research were beyond the scope of this review.

We considered studies examining the methods of higher education provision outlined in Section 1.2.5 as well as the policies to promote access, ensure quality and address gender issues outlined in Section 1.2.6 set in or involving students from developing countries as defined in Section 1.2.4.[5] Opinion pieces and literature

[4] It is not possible to gauge from this review the number and quality of relevant studies published in other languages.
[5] For a complete list of the included countries, please see Appendix 1.1.

reviews were also excluded from the review and were only used to identify further research. Pure descriptions of a method of provision or policy without any kind of user evaluation were also not eligible for inclusion in the review.

In summary, only studies meeting the following criteria were included in the review:

Study design:	Research studies that presented quantitative assessments of access, quality or gender issues.
Intervention:	Methods of higher education provision or policies to increase access, quality and/or gender-specific issues as outlined in Sections 1.2.5 and 1.2.6, respectively.
Date:	Only studies published after 1990.
Language:	Only studies published in English.
Location:	Only studies set in developing countries.
Outcome:	We considered all outcomes that fell within our definitions for access, quality and gender-specific outcomes as outlined in Sections 1.2.1, 1.2.2, and 1.2.3.

2.2.1.1 Interventions

The review included studies focusing on any *higher education policy designed to broaden access, ensure quality and promote gender equity*. The review also included studies focusing on the impact of specific *methods of higher education provision* set in or involving students from developing countries. A non-exhaustive list of policies and methods of provision included in the review can be found in Appendix 2.1.

2.2.2 Identification of potential studies: search strategy

Reports were identified through searches in two phases. The first phase consisted of searches in subscription and non-subscription databases, regional sources, Google Scholar, individual journals and key websites and an email blitz. For a complete list of the sources searched in this phase, please see Appendix 2.2. These sources were searched using filters to limit the search to studies published after 1990, when possible. Upon the completion of these searches, in the second phase we added to these results by:

- 'Snowballing' (hand-searching bibliographies of relevant papers to identify additional articles)
- Expert consultation (via personal or RAND networks)

A mixture of controlled vocabulary and free-text terms and their synonyms was used in a three-level search, when possible. Level 1 terms served to identify studies related to higher education as opposed to secondary or primary education. Level 2 terms aimed to identify studies that addressed specific forms of provision (i.e. interventions) such as public, private and for-profit institutions; policies such as financial aid programmes; and outcomes of interest such as access, quality and completion. Finally, Level 3 served to identify studies set in developing countries.

Special characters were used to ensure that all variations of the search terms were captured. By using the term, gender equit*, for example, articles containing terms 'gender inequities' and 'gender inequity' were both identified. For a complete list of the terms we used, please see Appendix 2.2.

2.2.3 Screening studies: applying inclusion criteria

Articles were searched in the sources listed above with the assistance of a research librarian. The results of the searches were screened in two stages using Distiller, a web-based reference management programme. The first stage of screening consisted of a review of all titles and abstracts (when available) identified by our searches. Two independent reviewers screened these titles and abstracts, answering the same set of five questions relating to the type of study (original, opinion piece, theoretical or review), setting (developed country or developing country), policy or provision examined, and research method (qualitative or quantitative) for each reference. The full title and abstract screening form used in Distiller is included in Appendix 2.3.

Based on the answers to these questions in the Stage 1 screening form, studies were classified as either 'exclude' or 'include'. Studies classified as 'exclude' at this stage were not further reviewed. Studies meeting inclusion criteria were transferred to Stage 2 for full-text review. Those records which provided insufficient information to accurately classify studies as either 'include' or 'exclude' based on the information contained in the titles and abstracts were also transferred to Stage 2.

Full-text copies of all studies transferred to Stage 2 were then obtained. In Stage 2 the studies were screened again using the same five questions as in Stage 1 (but this time using the full-text to answer the questions rather than the title and abstract alone). Studies that met the inclusion criteria based on the full-text review were included in the study and transferred to Stage 3 for data extraction and coding; those that did not were excluded and reviewed no further.

For a list of included studies, please see Appendix 2.4. For a list of excluded studies, please see Appendix 2.5.

2.2.4 Characterising included studies

Studies selected for full-text review were described using a standardised classification system developed for this review. The studies were categorised according to the following criteria, and all relevant data extracted when available (see Appendix 2.3 for full coding tool):

Study design: Studies were categorised as randomised controlled trials, before–after studies, case studies, surveys, etc. Coding of study design allowed us to assess whether the available evidence could provide robust evidence.

Study method: The method used to collect the data (e.g. questionnaire-based survey, individual interviews and focus groups) was recorded.

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students?

Intervention:	Interventions were categorised according to the description provided by the authors in the abstract where available. Examples of interventions included loan programmes, part-time programmes and overseas study.
Setting:	Studies were categorised according to where the intervention took place.
Population:	Information on the student population (e.g. gender, socio-economic status, ethnicity) identified studies that focused on particular subgroups of students. The number of participants was also extracted.
Outcomes:	Outcomes were broadly categorised and the specific outcomes and assessment methods extracted when stated. Examples of outcomes included enrolment and graduation rates.

Descriptive information was also recorded for each paper such as:

- Full bibliographical reference
- Publication type (peer review journal article, institution working paper)
- Source of funding

2.2.5 Identifying and describing studies: quality assurance process

2.2.5.1 Pilot testing

The research team completed an initial pilot test of the search strategy. Two independent team members assessed the relevance of the resulting titles yielded by each search as well as the quantity of the results produced. This pilot testing confirmed that the search terms provided a manageable number of relevant hits and identified studies relevant to the review.

Prior to beginning abstract and title screening, we also conducted a pilot test of the screening process. During this pilot, two researchers independently applied the inclusion and exclusion criteria to the titles, abstracts, and full article texts for a small sample of studies identified in the search process. Any disagreement or uncertainties over inclusion and exclusion were also discussed so that reviewers could be reasonably certain that they were applying the screening criteria consistently and that the screening tool was successfully identifying relevant studies.

Once the researchers agreed upon pilot studies for inclusion, three researchers independently applied the coding tool to the included pilot studies. The researchers then compared their choices and reached a consensus on their coding. Based on these results, we modified the coding tool as needed. This pilot phase also allowed us to develop a consistent screening and coding method, which was then applied to the remainder of the studies.

2.3 Methods for synthesis

2.3.1 Assessing the quality of studies

In order to assess 'how much "weight" should be given to the findings of a research study' in answering our systematic review question (Gough 2007), the quality of the studies selected was assessed according to three main criteria:

- Methodological quality (i.e. was the research methodology selected and used in the study applied appropriately)
- Methodological relevance (i.e. was the method used in the study appropriate to address the review's research question)
- Topic relevance (i.e. did the focus of the study under review contribute to answering the systematic review's research question)

In order to assess the 'weight of evidence' of each study, we developed a two-tiered system of classification for the studies. Research studies that fulfilled all three criteria outlined above were classified as Tier 1 studies, and studies that demonstrated topic relevance and met at least one other criterion e.g. methodological quality and topic relevance but not methodological relevance) were classified as Tier 2 studies. Studies that only fulfilled one criterion or that did not have topic relevance were excluded from the review. While Tier 1 studies provided the most robust evidence to address the systematic review question, Tier 2 studies also contributed relevant insights. To this end, the team separately evaluated Tier 2 studies that (i) utilised methods appropriate to answering the review question (and qualified the findings in terms of how well the methods were applied), and (ii) demonstrated the presence of well-conducted research (and qualified the findings for this review in terms of how appropriate the methods were for the review question). However, to help policy-makers and other stakeholders identify findings supported by the most robust evidence, throughout the document, we highlight findings supported by Tier 1 studies with bold text. Those findings that are only supported by Tier 2 studies are not highlighted in bold text.

Our classification scheme was based on information in the coding scheme in Appendix 2.3. Methodological quality, for example, was assessed based on factors such as sample selection methods, sample size, attrition, and data collection methods while topic relevance was determined by factors such as the outcomes studied, type of provision and setting. To help assure the review's quality at this stage, pairs of reviewers first worked independently and then compared their decisions before coming to a consensus. If necessary, a third reviewer provided an independent judgment.

2.3.2 Overall approach to and process of synthesis

The synthesis examines higher education policies and methods of provision and their impacts on access, quality and gender issues in developing countries, and addresses potential differences of these impacts in terms of gender. The synthesis also describes the ways in which these differentials are understood to occur. Additionally, the synthesis explains the types of outcomes for which there is

evidence. Finally, the synthesis briefly addresses gaps in the evidence based on the systematic review question.

We use narrative synthesis to analyse the studies and structure the synthesis around a summary table presenting descriptive details of each Tier 1 study included in the review.

2.3.2.1 Selection of outcome data for synthesis

As previously mentioned, the definition of 'higher education provision' is broad, making the potential range of outcomes of primary studies quite large. However, not all outcome data from primary studies were relevant for analysis in this systematic review. Data synthesised in the review included only those studies which specifically address how different forms of higher education provision impact on student outcomes including but not limited to access, quality and completion. We discuss the outcome indicators considered and not considered in the evidence in the synthesis.

2.3.2.2 Process used to combine and synthesise data

The synthesis of data was guided by the following key questions:

- What are the specific outcomes examined in the evidence?
- What is the evidence on whether different types of higher education provision and policies lead to different outcomes?
- If there is evidence that different types of higher education provision and policies lead to different outcomes, what are the implications for key institutions in developing countries?
- What is the overall evidence on the differential impact of various forms of higher education provision and policies for women relative to men?

For the narrative synthesis, the studies are grouped into eight different categories of education provisions or policies. The results are then discussed with appropriate emphasis given to the studies that were more methodologically robust. The narratives were written by one reviewer and then checked independently by a second reviewer who provided feedback and comments. A third reviewer adjudicated on any disagreements.

2.4 Deriving conclusions and implications

We derived implications and conclusions from the synthesis of findings based on the review team discussions, as well as ongoing, informal interactions with AUSAID's Research and Evidence Division staff members. We also drew upon the expertise of Dr Krishna Kumar, a Senior Economist at RAND and team member, who has extensive experience in international development and higher education issues.

3. Search results

We conducted searches in three main sources: traditional databases, regional databases and grey literature. We also reached out to a number of stakeholders for both published and unpublished studies in an email blast. Expert consultation was also used. In these searches, we employed two search strategies: complete and modified. The complete searches used the entire list of terms included in the search strategy outlined in Appendix 2.2. Some databases, however, required a more basic search strategy due to limitations on the number of search terms that could be applied, so we also completed a variety of modified searches. Additional details regarding all of these searches can be found in Appendix 2.2, which describes the search strategy in greater detail.

The traditional databases yielded a total of 16,192 results; the results of our regional database searches produced 20,448 titles; grey literature and the email blast yielded 21,133 results. Stakeholders suggested an additional 18 titles while snowballing produced 40 more titles. This resulted in a total of 57,831 records prior to checking the results for duplicates. Upon completing this process, 13,794 unique titles remained.

We then screened the studies as described in Section 2.2.3. Title and abstract screening resulted in the inclusion of 760 studies for full-text review. Of these texts selected for full-text review, we were able to locate the full texts for 731 of them. These texts were screened and 187 were selected for coding. An additional 12 studies were excluded at the coding stage. The conflict rate for this study was 6.39 percent (881 studies) in the title and abstract screening and 7.24 percent (55 studies) for the full-text review. In these cases, a third reviewer made the final decision, as outlined in Section 2.2.3. Appendix 2.2 provides a summary of all results from each type of search.

4. Details of included studies

We applied the full-text review criteria (Appendix 2.3) to the studies selected for full-text review, following the procedures described in Section 1. Each included study was then coded using the coding tool (Appendix 2.3). This exercise resulted in the inclusion of 175 studies, 24 of which were classified as Tier 1 studies and 151 as Tier 2 studies. Table 4.1 provides a summary of the included studies, categorised by topic.

Table 4.1: Included studies

Method of provision or policy	Tier 1	Tier 2	Total
Affirmative action	3	5	8
Cross-border	0	9	9
Open and Distance education	1	27	28
Financial	10	51	61
Institutional type	5	16	21
TVET	3	10	13
General/increasing access for specific subgroups	0	26	26
Other	2	7	9
Total	**24**	**151**	**175**

As the table shows, included studies vary considerably in terms of the type of provision or policy studied. There are eight studies that analysed the impact of affirmative action; nine that examined cross-border and transnational provision; 29 that analysed ODL; 61 that studied financial policies/programmes (including cost-sharing policies and student loan programmes); 12 that examined Technical and Vocational Education and Training (TVET); 26 that looked at increasing access for general or specific subgroups; and eight that focused on provisions and policies not captured by other topics.

5. Synthesis results

This section summarises the evidence on the methods of provision and policies addressed in this review. For each category of evidence, this review addresses the quality and type of studies, summarises the evidence and results, and suggests areas for future research. The analysis is narrative in nature and centres around key themes identified for each topic. When available, Tier 1, quantitative findings are discussed and the magnitude of their effects reported. In cases where Tier 1 evidence is unavailable or lacking, qualitative and descriptive evidence from Tier 2 is used to supplement the discussion.

5.1 Evidence spanning multiple policies and provisions

5.1.1 Quality/type of studies

Our search yielded some evidence that there have been movements towards increasing the access for various subgroups of individuals in developing countries such as disabled students, females, and ethnic minorities. While none of the studies in this category met the standards for inclusion in Tier 1, 26 studies met the standards for classification as Tier 2 studies. Of the 26 articles discussed in this section, 15 provide general evidence on increasing access to higher education and 11 of them focus specifically on increasing access for specific sub-populations. The first section briefly addresses the former group and all subsequent sections focus on the latter group.

5.1.2 Evidence/results

5.1.2.1 General access themes

Access to higher education for various groups in developing countries can be more difficult than in higher-income countries. For example, Murakami and Blom (2008) found that families in Latin American countries pay approximately 60 percent of their per capita income on higher education, compared to the 19 percent paid by families in higher-income countries. Affordability for higher education becomes even more difficult when private institutions are considered (Hossain 2005, Yu and Ertl, 2010).

One solution to increase access to higher education is to expand higher education institutions, as seen in China (Ding 2007) and Brazil (Schwartzman 2004). In some instances, countries have achieved an overall increase in higher education enrolment across the board (Ding 2007, Morley et al. 2009), with increases occurring gradually over the years. However, as studies like Liu (2007) found, the access to education is still unevenly distributed.

Despite the efforts of some countries to increase access to higher education for different subgroups, however, it is argued that some policies provide only 'Band-Aid' solutions. While Brazil, for example, has made numerous attempts to increase access for its population, studies conducted by Dias et al. (2011), Neves et al.

(2007) and Schwartzman (2004) found that despite increases in enrolment, without proper infrastructure and support for students, a high drop-out rate among the poorest students still persists. Most of the studies in this section found that those individuals of higher socio-economic status fare better than those in lower income brackets (Cupito and Langsten 2011, Pinitjitsamut 2009, Yu and Ertl 2010).

Many of these studies also found similarities in terms of capacity in the different countries with problems due to over-expansion. Studies in this review noted that large classroom sizes, high student to teacher ratios, and longer completion times all play a role in hindering student matriculation and retention (e.g. Bloom et al. 2006, Eris 2011). All of these factors can play a role in determining the quality of an institution as well as supporting student achievement.

5.1.2.2 Increasing access for specific subgroups

We note three common themes among the 11 studies focusing on specific subgroups. First, none of these studies focused on specific policies that led to measurable increases in access for subgroups; rather, most examined changes in access for specific populations over time, attributing changes in higher education access to a broader set of factors such as the increased development of higher education institutions or general policies of inclusion. Moreover, it is important to note that while many studies indicated significant increases in female participation, male participation had also increased. Thus, while the difference in the proportion of women to men had grown smaller, there was still a significant gap in terms of the total number of female versus male students.

Second, geographical region plays an important role in female enrolment. In some countries, women in rural areas seem to have fewer opportunities than women in urban areas (Adeyemi and Akpotu 2004, Xie et al. 2010). In contrast, the development of higher education institutions in rural areas in India has resulted in exponential increases in female enrolment, while in more developed cities such as Mumbai, growth has been much more modest.

Finally, with regards to female participation in higher education, across the board in in different countries, researchers found that there was a gender gap for women in the sciences (Ayodele et al. 2006, Plane 2010, Sahni and Shankar 2012). Female students tended to enrol more in the humanities and social sciences, and, in the case of Ghana, the home sciences (Daddieh 2003).

5.1.2.3 Disability status

Two studies focused predominantly on access for the disabled, and in particular on the perceptions of students currently enrolled in the programmes. Although one study took place in Tanzania and the other in Ukraine, we note several common findings. First, both studies found that the accommodations for students with disabilities are inadequate in meeting the needs of these students. Nonetheless, most of the student participants were optimistic about their experience. Nyigulila Mwaipopo et al. (2011) used a social model to determine the outcomes of policies that focus on the rights of access to higher education by people with disabilities.

The findings in this study were predominantly qualitative. Researchers found that those students able to manoeuvre through the primary education system and qualify for higher education face further challenges, beginning with the university application process. Access to higher education is based on qualifications earned through secondary school and on matriculation examinations, which all qualified students must take, but which have often not been suited to the needs of students with certain disabilities. The problems stemmed from a lack of information available about the applicants beforehand, so little to no prior accommodation was possible, making the examination process a daunting undertaking. In the absence of a university liaison, students had to actively seek out available accommodations.

Once students with disabilities are admitted to a university, their ability to maintain their places at the university level is affected by the availability of supporting infrastructure – physical and otherwise. The physical layouts of many campuses are not conducive to the needs of many students with disabilities. These universities have to seek other ways of accommodating students. The universities in the included studies both made an effort to accommodate disabled students at the current campus, and were more forward thinking in terms of future building and its impact on access for students with disabilities. Other infrastructures were important to students' success as well. One university had an academic support staff in place for students with disabilities. Even with this support, however, many students were forced to rely on informal infrastructures as well. These informal systems were not always reliable and hampered students' ability to succeed. In other cases informal networks and discussions with fellow students acted as enablers for success.

In a study of Ukrainian higher education and access for students, Raver-Lampman and Kolchenko (2007) surveyed 80 students with disabilities attending the Open International University of Human Development in Kyiv (Kiev), Ukraine, and 39 instructors from the same university. This study focused on the quality of education for students with disabilities rather than on access to it. The study showed that Ukraine has very little in terms of a formal policy regarding the integration of students with disabilities into its education system, including those at the university level. Closer examination revealed differences between students and instructors in a few areas: the instructors' willingness to change locations for students with disabilities; instructors' willingness to change teaching styles to communicate with students; and whether instructors made students with disabilities feel accepted.

Both students and instructors agreed on several issues. Both instructors (88 percent) and students (85 percent) rated their experience with integrated university education as satisfactory, which was significant given that there is very little support for students or instructors. Those instructors in the College of Economics were very satisfied with the experience of teaching students with disabilities and were more likely to have had prior experience with disabled students. Only 30 percent of the instructors from the College of Law and Business, on the other hand, had previous experience working with students with disabilities and were far less satisfied with the experience (14 percent). All groups across the

university agreed that more support was needed for integrated classes to work well.

Students and instructors disagreed on instructors' perceptions of their practices, for example while instructors frequently indicated a willingness to accommodate students, particularly in terms of relocating classes, students indicated that in practice, there was little evidence of change. Thus, even as instructors expressed concern and interest through the open-ended questions in helping their students with disabilities, students were not necessarily experiencing that same thoughtful or caring attitude in the classroom. On the other hand, students were most likely to be optimistic about the future (56 percent) while only 25 percent of instructors expressed optimism. Optimism varied depending on the college from which the instructors came. Instructors and students were most optimistic about employment after graduation from the College of Languages and Journalism, where most of the students were enrolled in the English Translation degree programme. Translation jobs may be inherently more accommodating to disabled employees' needs than some other fields.

5.1.2.4 Race

One study focused on broader racial policies that were not limited to the affirmative action category. Marteleto (2012) examined the structural changes and racial classification shifts from 1982 to 2007 in Brazil using data from the Pesquisa Nacional por Amostra de Domicílio (PNAD), a nationally representative household survey conducted annually by the Brazilian Census Bureau. During this time, a number of policies were explored in Brazil. The results showed that although the educational advantages of pardo[6] Brazilians declined during the 25-year period, they still persisted. Over the years younger cohorts of black Brazilians, although educationally disadvantaged compared to whites, have obtained similar or higher levels of education relative to their pardo counterparts. Marteleto found that the educational disadvantages associated with being pardo were significantly less in 1982 than the educational disadvantages associated with being black. Notably, however, some of these changes might be explained by changes in racial categorisation rather than changes in attitudes to race.

[6] Pardo refers to one of five racial classification categories used by the Brazilian Institute of Geography and Statistics (IBGE) in Brazilian censuses (the other categories are branco ('white'), negro ('black'), amarelo ('yellow'), and indígena ('indigenous person'). People falling into this category have varying skin tones and are typically a mixture of black and indigenous racial backgrounds, not just two of these categories.

5.1.2.5 Gender

Several studies focused on access for women. A study by Xie et al. (2010) analysed women's access to higher education in rural and urban China and evaluated the disparities between urban and rural women college students' access, as well as urban–rural variation across different types of institutions. Using survey questionnaires, which included questions on students' personal and family circumstances and factors influencing institutional selection, researchers gathered qualitative data to inform study analysis. The research assessed the overall distribution of urban and rural female students at state-run and private institutions.

The analysis revealed disparities between urban and rural women's access to higher education. New increases in educational opportunities for women in China primarily benefited urban women. In addition, the greatest difference in urban–rural access occurred in private institutions. Researchers concluded that the urban–rural disparity in women's higher education access is tied to two main factors: (i) private institutions have relatively high fees and (ii) family income and parents' education levels are fairly low in rural areas.

Sahni and Shankar (2012) used secondary data to examine higher education inclusiveness for women in India. Their results showed an increase in female enrolment in higher education at the national level. Some of this increase was due to a rise in the number of higher education institutions in southern India, where males still outnumber female students. In addition, while the number of female professional students increased in the south, in the rest of India women were predominantly enrolled only in general education studies.

Sahni and Shankar (2012) also focused specifically on Maharashtra, a leading state in girls' education in India. They found that participation by women in higher education in Mumbai had doubled and had increased twelve-fold in emerging centres in the outskirts, like the city of Nanded. Despite these increases, enrolment had been skewed away from the sciences and towards general education. They also noted significant variance among different regions in Maharashtra.

Ayodele et al. (2006) examined the enrolment of female students at Ado-Ekiti University, Nigeria, using secondary data analysis. They found that the gender distribution of undergraduates between 1994/95 and 2002/03 varied between 29.9 percent to 37.84 percent females, respectively. Evidence also revealed an unequal distribution of female undergraduates between arts and humanities relative to science and technology–based disciplines. For example, percentage female enrolment was 48.46 percent in the arts, 47.03% in education and 37.23% in management sciences. On the other hand, female enrolment was 10.25 percent in engineering and 15.15% in the College of Medicine.

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students? s results

Plane (2010) conducted a study of women in the computer science programme at Kabul University in Afghanistan. In this mixed method study based on a survey of 191 respondents (out of a total population of 272) and focus groups, Plane found that Afghan women in computer science received significant parental encouragement, even from parents with no computer background. The level of encouragement students received from parents was similar when compared either by gender or by graduation cohorts. Students who responded from each class ranked the encouragement from their parents noticeably higher than the encouragement they received from those outside their families. Only 34 percent of the women who completed surveys indicated that science had been their first choice. Overall, most of the men and women who studied in this programme had little to no experience with computers prior to starting it.

Adeyemi and Akpotu (2004) conducted a gender analysis of student enrolment in Nigerian universities through an examination of trends and patterns between 1989 and 1997. Over the years, female enrolment rose from 40,125 (26.22 percent) in 1988/89 to 74,300 (43.09 percent) in 1996/97. The researchers identified a gap in female enrolment in the sciences or science-based disciplines and between northern and southern Nigeria (with the greatest number of female enrollees in the south). The researchers hypothesised that the difference reflected contact with Westernised education: those areas with earlier contact had more female students.

Daddieh (2003) explored the access of female students in Ghana, with a focus on public institutions of higher education. Overall there appeared to be an increase in enrolment among both men and women, but male students still significantly outnumbered female students. The researcher found that despite gains in elementary school, female enrolment declined, such that by college, less than a quarter of all students were women. Moreover, women seemed to be over-represented in the humanities and social sciences in all the universities studied. Few (approximately 19 percent) enrolled in the sciences.

5.1.3 Summary, policy implications and further research

Many of the studies in this category gathered data from small, non-generalisable samples of students in a single institution or programme of study. Others uncovered broad national trends, but were unable to determine specific policies and practices that led to an increase of access or improved quality of education for the different subgroups.

The results of these studies show that the percentage of historically disadvantaged subgroups enrolled in higher education has increased over recent years in many developing nations. Notably, however, looking at increases in the percentage of certain subgroups enrolled in higher education institutions alone may be misleading. While the difference in the proportion of women to men in higher education, for instance, has decreased, concomitant increases in male participation have led to increased gaps in the total number of women and men in higher education.

The distribution of certain subgroups by important factors such as field of study is also skewed. A gender gap, for instance, is evident in the sciences. Differences in access to education also vary geographically, with the greatest differences being between students from urban and rural areas.

Several barriers to accessing higher education were also identified from the literature, for both disadvantaged subgroups and the more general population. First, higher education is often unaffordable to many families in developing countries where privately paid educational expenses represent a much larger percentage of their income relative to families in developing countries, on average. Second, inadequate infrastructure and support for students, particularly those from low-income families, are associated with persistently high drop-out rates. Finally, accommodations for disabled students are often inadequate.

More studies are needed to examine policies that explicitly increase access for women and other subgroups into higher education institutions. Many existing studies, like Zuoxu et al. (2010) and Sahni and Shankar (2012) noted that there has been an increase, but most researchers have not been able to pinpoint a specific policy as being responsible. Although the general increase of women and other subgroups in higher education shows movement in a positive direction, more research is needed to determine successful ways to strengthen that increase.

Likewise, more studies should examine access to and quality of education focusing on students with disabilities. The two studies referenced in this section highlighted the challenges that students with disabilities experience when navigating the path to college and the perceptions of their academic experience. Further studies examining completion rates for students with disabilities on a national scale could give further insights into a population of students often ignored by policy-makers and, given the few studies identified, researchers.

Summary

- Findings spanning multiple policies and provisions are only available from Tier 2 evidence
- The proportion of females and minorities enrolled in higher education has increased in many developing countries but evidence on the exact policies responsible for increasing access is lacking.
- Proper infrastructure and support systems may help in reducing drop-out rates, particularly among lower-income students.
- The provision of adequate accommodations may improve access to and the quality of higher education for disabled students.
- Policies and programmes to increase female participation in the sciences are needed to decrease the gender gap for women in these fields.

5.2 Evidence on affirmative action

5.2.1 Quality/type of studies

Affirmative action refers to positive discrimination through different policies and strategies implemented by government or universities for historically disadvantaged groups. Our search revealed eight studies that met the criteria for inclusion. Three of these studies met the standards for Tier 1 evidence. The remaining five provided Tier 2 evidence. The factors these studies took into account included: race, caste (India), gender, catchment areas, backwardness factor, ethnic quota and reduced fees for indigenous populations.

Notably, the majority of these studies (three) focused on India. This is partly because India has one of the longest standing affirmative action policies in the world relative to other nations. In India, affirmative action policies for scheduled castes and scheduled tribes are based in the constitution and have been operating for the last six decades.

Most of the included studies examined access and enrolment for the targeted groups. Some of the studies also included effects for groups not targeted by (but affected by) the policies. These studies drew predominately upon administrative admissions and achievement data, although a few used macroeconomic and labour market data as well. Using data on enrolment rates, achievement levels and wages, these studies explored the ability of affirmative action policies to target their intended groups and the impact of these policies on academic and labour market outcomes. The studies also considered the impact of such policies on equity. The discussion below draws out key themes and examples from the studies reviewed. It emphasises Tier 1 studies, as these studies provide the most robust results.

5.2.2 Evidence/results

Overall most of the studies indicated positive effects of the affirmative action, while very few suggested that these policies have negative impacts on the quality of university education. Several studies, however, cited potential concerns regarding the ability of students targeted by affirmative action to meet the academic standards of the admitting institutions. Others questioned the net benefit of such policies and as well as their ultimate equity.

5.2.2.1 Targeting

Targeting refers to the ability of affirmative action policies to effectively reach the intended groups. The results of these studies indicate that affirmative action policies do, in fact, increase enrolment for the intended groups. Notably, however, such policies may also result in the inadvertent exclusion of other groups of interest, such as females or low-income students, a finding that must not be overlooked.

Examining evidence on affirmative action policies in Kenya, Uganda and Tanzania, Onsongo (2009) found support for the claim that affirmative action policies do in fact increase enrolment for the groups they target. The study reported that

lowering the cut-off score required on the Kenyan university admissions examination for females resulted in an increase of about 300 female students (out of a total of approximately 10,000 students) to Kenyan public universities every year.

Furthermore, following the implementation of a policy at Uganda's Makerere University that awarded female students 1.5 bonus points on their entrance examination results, there was an increased share of females from 23.9 percent in the 1989/90 academic year to 45.8 percent in 2003/04 academic year. Finally, following the implementation of a similar programme in Tanzania, the proportion of females admitted to the University of Dar es Salaam increased from 15 percent to 27 percent. Downs (2010) also found significant increases in enrolment in the sciences among black students following the implementation of a Science Foundation Programme in South Africa.

A study by Seeberg (1993) examined the result of targeted recruitment reforms in China. The examined policies aimed at counteracting distortions in access to higher education resulting from differences in the speed of economic development among different regions of China. The author looked at the impact of these reforms on the most prominent dimensions of stratification in China: social class, urbanity and gender. He found these policies had a positive impact on enrolment for rural students and those with lower socio-economic status, but a negative impact on females. Stratifying by social class, the number of lower-socioeconomic status students recruited under the new policies doubled from 25.5 percent to 52.4 percent, while the proportion of upper socio-economic and middle- socio-economic statuses students declined. Recruits from rural areas increased from 21.4 percent to 36.4 percent while the share of recruits from urban areas declined from 78.6 percent to 63.9 percent.

Notably, however, female recruitment dropped from 42.6 percent to 38.3 percent. This is because a large proportion of the enrolled female population (40 percent) came from higher socio-economic statuses. By targeting students with lower socio-economic status, such policies therefore inadvertently reduced the number of female enrollees. The study also indicated that among rural recruits, females were outnumbered three to one by males, another reason for the observed decline.

Like Seeberg (1993), **Bertrand et al. (2010)**[7] also noted that affirmative action can have unintended consequences for groups not targeted. When examining affirmative action policies, consideration for how these policies impact other groups as well as the ultimate equity implications of these policies is important. There is a strong possibility that targeting based on race, ethnicity or caste as

[7] Bold citations indicate Tier 1 studies.

opposed to other factors may have significant equity implications. As these studies show, family income is a strong predictor of college attendance. Thus, the problem with policies targeting specific racial or ethnic groups regardless of their income is that such policies may disproportionately benefit wealthier individuals in these targeted groups. Moreover, in doing so, such policies may also displace poorer, non-minority students, further exacerbating income inequality for the sake of equality on some other parameter.

Supporting this claim, **Bertrand et al.** (2010) described the unintended consequences of affirmative action policies in India. While such policies have been successful in targeting lower-caste students, they have had an unintended consequence on female enrolment. Supporting this point, **Bertrand et al.** noted that while the displaced student population was 23 percent female, the displacing population was only 16 percent female. As in the case of Seeberg (1993), this is probably because female students tended to come from wealthier families (who were disproportionately displaced by affirmative action policies). This result highlights the importance of considering how polices or programmes aimed at one group of interest may have unintended consequences on another.

5.2.2.2 Academic outcomes

In addition to the aforementioned equity considerations, there is also some worry that affirmative action policies may have unintended implications on the quality of higher education for both targeted and non-targeted students. By their very nature, affirmative policies grant some people admission to universities they might otherwise not be academically qualified for. Because of these lowered standards, students admitted under affirmative action are thus often less academically prepared relative to their traditionally admitted peers. This puts them in a situation in which they must catch up with their peers.

Using data on the 2008 graduating class from an elite engineering institution in India, **Robles and Krishna (2012)** examined whether or not students admitted under affirmative action policies were able to catch up with their traditionally admitted peers. Analysing data on the performance of these minority and non-minority students, the study found no evidence of catch up. In fact, not only did students from scheduled castes and scheduled tribes fail to catch up, they actually fell behind their same-major traditionally admitted peers. This was especially true for students in more selective majors.

Table 5.1: Tier 1 evidence on affirmative action

Study setting and details	Findings
Bertrand et al. (2010) Country: India Intervention: Affirmative action programme for 'lower-caste' groups Method: two-stage least **squares instrumental variable (IVs), quasi-experimental, on individual-level** administrative data	Affirmative action successfully targeted the financially disadvantaged. The displacing marginal lower-caste students came from less advantaged backgrounds than the marginal upper-caste students they displaced. Displacing students also demonstrated strong, positive economic returns to admissions. These findings contradict common arguments against affirmative action, which state that it is only relevant for richer lower-caste members, or that those who are admitted are too unprepared to benefit from the education. Such benefits, however, come at a cost. Point estimates suggested that the marginal upper-caste entrant enjoyed nearly twice the earnings-level gain of the marginal lower-caste entrant. This finding illustrates the programme's redistributive nature: it benefits the poor, but costs resources in absolute terms.
Francis and Tannuri-Pianto (2012) Country: Brazil Intervention: Racial quotas reserving 20% of available admissions slots for students who self-identified as **black** Method: First-difference regression on sibling pairs, quasi-experimental, on individual-level administrative and survey data	Race, socio-economic status and gender were considerable barriers to college attendance and achievement. First-difference regressions involving pairs of siblings indicated that black identity and female gender had a negative effect on entrance examination scores. Scores also decreased significantly as family income and maternal education level declined. Racial quotas helped promote equity for these disadvantaged groups. Specifically, about 71% and 27% of the displacing students were racially mixed or black compared to 31% and 2%, respectively, of the displaced students. About 95% of the displacing students identified themselves as black compared to 16% of the displaced. 39.7% of displacing and 19.0% of displaced applicants were from lower-income families whereas 8.5% of displacing and 30.7% of displaced applicants were from higher income families.
Robles and Krishna (2012) Country: India Intervention: Caste-based quotas Method: linear regression, propensity score matching and bivariate probit models, quasi-experimental, on individual-level administrative data merged with district-level data on demographic indicators	Admission preferences successfully targeted minority students. Scheduled caste and scheduled tribe students, especially those in more selective majors, however, tended to fall behind their same-major peers instead of catching them up. Finally, minority students who enrolled in more selective majors as a consequence of admission preferences end up earning less than they would have if they had chosen a less selective major. Additionally, although there was no evidence of discrimination against minority students in terms of wages, scheduled caste and scheduled tribe students were more likely to get worse jobs, even after controlling for selection.

Such evidence shows that while affirmative action may help minority students obtain admission to more elite universities, they do not necessarily ensure that

these students will achieve at the same level as their traditionally admitted peers. Interestingly, the displacement of higher-achieving non-minority students by lower-achieving minority students may have significant implications for the nation as whole. In their analysis, **Bertrand et al. (2010)** noted that gains for minority students benefiting from affirmative action may come at an absolute cost. This is because the income losses experienced by displaced applicants of higher socio-economic status were larger than the income gains experienced by displacing students of lower socio-economic status. This has implications for nations trying to balance dual growth and equity goals.

Table 5.1 summarises the Tier 1 studies on affirmative action.

5.2.3 Summary, policy implications and further research

Affirmative action refers to positive discrimination through different policies and strategies implemented by government or universities for historically disadvantaged groups. Specific policies may include lowering the cut-off score on admissions tests for targeted groups or adding bonus points to the entrance exams of targeted students. **Most of the included studies indicated positive effects for affirmative action in increasing access to higher education for targeted groups,** while very **few suggested that these policies have negative impacts on the quality of university education.**

While affirmative action policies may be successful at targeting their intended audiences, they nonetheless may have several unintended consequences for non-targeted groups. **A class-based affirmative action programme, for instance, may result in unintended decreases in the number of females admitted.** Further research could be done to evaluate potential strategies to mitigate these unintended outcomes. It would be relevant to know, for example, whether parallel policies to mitigate declines in female participation in higher education as a result of these policies (as seen in the studies by Seeberg [1993] and **Bertrand et al. [2010]**) exist.

Additionally, students admitted under affirmative action policies are often less academically prepared than their traditionally admitted peers. The evidence in this section suggests that students admitted under affirmative action may have difficulty catching up with their peers. Further research is needed to evaluate programmes aimed at closing the achievement gap between traditionally admitted students and those admitted under affirmative action.

There is also a need for more robust, causal evidence on affirmative action policies. None of the identified studies utilised randomised experiments to determine the outcomes of such policies. Randomised controlled trials would be useful in providing high-quality evidence on this issue. As academic achievement and employment outcomes depend on a multitude of factors other than race, gender or caste, better experimental designs are needed to separate the effects of affirmative action policies from other confounding factors.

Summary

- **Affirmative action policies have successfully increased access to higher education for targeted groups in some developing countries.**
- **We find no evidence that affirmative action policies negatively impact the quality of higher education.**
- **It is important to consider how affirmative action policies aimed at one group of interest may impact other groups, including other disadvantaged groups.**
- **Students admitted under affirmative action may experience difficulty catching up with their peers, particularly in more academically challenging fields.**
- Policy-makers should consider implementing parallel policies to mitigate some of the negative, unintended consequences of affirmative action policies and help close the achievement gap between traditionally admitted students and students admitted under affirmative action.

Finally, the research identified for this review appears to be uneven with respect to nationality. The majority of the evidence comes from India (three studies) while the remainder of the studies examined policies in China, Nigeria, Kenya, Uganda, Tanzania and Brazil. It would be useful to have a wider and more geographically representative evidence base.

5.3 Evidence on cross-border and transnational provision

5.3.1 Quality/type of studies

Our search revealed nine Tier 2 studies that met the criteria for inclusion. Upon inspection, these mainly qualitative studies divided into two broad groups: studies focusing on institution-level activities and studies focusing on students' views or student outcomes from a particular programme. Not all of these studies, however, included results or outcomes in the categories of interest; none dealt with gender issues. Studies gathering data from students utilised small, non-generalisable samples drawn from a limited number of institutions or programmes. Studies gathering data from institutions (e.g. via questionnaires) suffered from low response rates or focused more on process or implementation than on outcomes. Overall these types of methodological limitations meant there was little firm evidence on effectiveness of cross-border and transnational provision.

5.3.2 Evidence/results

Turning first to studies that gathered data from students, Miliszweska and Sztendur (2011) surveyed 500 transnational students participating in eight undergraduate computing programmes offered by four Australian universities in Hong Kong, Malaysia, Singapore and Vietnam.[8] The factors that students perceived to be most important for transnational programmes were: students' own motivation and self-discipline; instructors who are well-organised and prepared and who understand the programme requirements and students' needs; a curriculum relevant to students' jobs or career interests; assessments aligned with course learning objectives and that include student evaluations; technology that is available, reliable and easy to use; timely preparation of materials; and institutional attention to quality assurance. Student satisfaction varied as to how well these features were implemented in their own programmes.

Willis (2010) gathered students' perceptions of foreign-delivered university programmes through surveys (296 Chinese first-year university students) and interviews (137 students in nine cities). Results indicated how to adapt foreign degree programmes for the Chinese market. The most important factors identified were: reputation of the university; range of subjects taught (especially business/management, taught in a Western style but in a way that is understandable to Chinese students); instruction in English; preference for foreign teachers, up-to-date materials and technology and international textbooks; access to a study abroad programme; and delivery via a Chinese university (to ensure quality assurance). The study suggested that students do not seek programmes that involve foreign staff in China for short periods of time, but desire access to full-time academic staff and administration in China.

A study by Mok and Zu (2008) evaluated the learning experiences of Chinese students enrolled in programmes in Zheijiang Province, primarily offered by Australian providers. The survey of 143 students in three specific programmes found that most students were satisfied with course arrangement, teaching content, methods and assessment, and teacher quality. Students were concerned about quality assurance of the programmes and who has responsibility for it, and about the high cost of the programmes.

Koda et al. (2011) analysed outcome data for 548 Malaysian graduates immediately after graduation between the years 1999 and 2008, using mainly administrative data from programme records. The research was limited to two programmes that promoted skill development in engineers for the manufacturing sector, which were publicly funded 'twinning' programmes (through Japan's Higher Education Loan Project). Results indicated that graduates had been absorbed into industries they

[8] Note that only Vietnam and Malaysia are classified as developing countries, but the study found general agreement in students' perceptions across all countries.

intended to work in or went on to further studies: the average employment rate was 62 percent, with 18 percent pursuing further studies. Of those finding jobs, 84 percent found relevant jobs, mainly in Japanese companies located in Malaysia. The study concluded that publicly funded programmes for cross-border education can contribute to employment in relevant industries and can produce better or equivalent outcomes than for domestically trained graduates.

A final study (Ng 2011) that gathered data from students included surveys of students who attended education expos (900 students) and government and international higher education institutions in target cities (470 students in Mumbai, New Delhi [India], Jakarta [Indonesia] and Kuala Lumpur [Malaysia]). As part of this study, the researchers also conducted interviews in Hong Kong with students from Asian countries including India, Indonesia and Malaysia. The aim of this study was mainly to assess the market for exporting Hong Kong's higher education to Asia and to identify strengths and weaknesses as identified by potential students. It did not provide any findings of interest to this review.

Of the institution-based studies, the most extensive is the evaluation of the European Commission's TEMPUS (Trans-European Mobility Scheme for University Studies) programme to improve the quality of higher education reforms in eligible partner countries through: Joint European Projects (JEP, focused on curriculum development, university management and training courses for institution building); Structural and Complementary Measures (SCM, short-term capacity building or technical assistance); and Individual Mobility Grants (IMGs, for faculty) (Van der Aa et al. 2009). The 2009 evaluation of TEMPUS III (2000–06) included surveys of JEP and SCM programme coordinators (40 percent response rate) and interviews with students in five case study countries.[9]

There was mixed evidence that TEMPUS III positively affected the employability of graduates. Only 17 percent of JEP respondents felt that this was the case, and only a few examples of a direct link between the programme and individuals gaining employment were uncovered. Uzbekistan had better employment results, which resulted from policies to make qualifications more vocationally relevant. In general however, the evidence suggested more indirect effects of graduates utilising their skills, competences and qualifications gained or enhanced through TEMPUS III to obtain jobs.

Only about 3 percent of programmes reported increases in student enrolment.

According to the surveys, the top main benefits to students were: access to new learning materials and methods (39 percent); greater awareness of other cultures (33 percent); improved qualifications (25 percent); improved geographical mobility

[9] TEMPUS III included Euro-Mediterranean and western Balkan countries. The case studies were conducted in Macedonia, Morocco, the Russian Federation, Serbia and Uzbekistan.

(22 percent); and improved foreign language skills (22 percent). In MEDA[10] and TACIS[11] countries, 47 percent and 33 percent of respondents, respectively, reported that students also improved ICT skills. In addition, TACIS country respondents judged improved employability as a main student benefit (39 percent).

Two other institution-level studies surveyed a sample of institutions about the degree of cross-border activities, significance of expected outcomes, and preferences for institutional partners (44 percent response rate). The Japan International Cooperation Agency – Research Institute (JICA-RI) survey covered 300 'leading' institutions active in cross-border higher education in 10 ASEAN (Association of Southeast Asian Nations) countries plus the Republic of Korea, Japan, China, Australia and New Zealand (Kuroda et al. 2010). The research did not examine student outcomes, but focused on institutional preferences. It found that North-east Asian countries looked to North America for partners, while East Asian universities preferred partnerships within their own region. Conventional activities, such as cross-border institutional agreements and opportunities for outward mobility of faculty, were regarded as better than innovative activities, such as cross-border collaborative degree programmes and use of ICT for cross-border distance education. The second study (Fang 2012) used a modification of the JICA instrument in a very small, non-representative sample of 67 Chinese teaching and research institutions and did not yield sufficient evidence related to this review.

Finally, one report gathered expert papers from a workshop activity that focused on strategies for improving higher education in sub-Saharan Africa (Teferra and Greijn 2010). It did not examine outcomes, but attempted to identify lessons for universities as they developed institutional strategies. The lessons stressed some aspects of cross-border or transnational education, including developing ICT

Summary

- Findings about cross-border and transnational provision are only available from Tier 2 evidence
- Students' views on what constitutes programme quality are important and should be considered in programme design and evaluation.
- There is mixed evidence as to whether graduating from cross-border and transnational programmes has a direct effect on subsequent employment.
- Provision of cross-border and transnational programmes may offer several benefits to students, but are unlikely to affect higher education enrolment.
- Institutional preferences about partnerships should be considered in developing policies to promote cross-border and transnational education.

[10] Mediterranean Development Assistance (European Commission programme in the context of the Euro-Mediterranean partnership).
[11] Technical Assistance to the Commonwealth of Independent States (European Commission programme in the context of the partnership and cooperation agreements with countries in eastern European and the Asian states).

infrastructure (to be able to access distance learning courses) and to encourage innovative teaching methods that make use of ICTs and the internet.

5.3.3 Summary, policy implications and further research

While the studies identified in this category provide little evidence on the effectiveness of approaches to increasing access or quality, they do suggest that it is important to incorporate students' perspectives when evaluating cross-border or transnational projects. The evidence from studies that gathered student survey data reveal some useful information with regard to how students define 'quality' and what matters to them. For example, Asian students may have specific expectations of what 'Western' education will entail, especially when taught by Western faculty.

Quality assurance is also a concern of students participating in cross-border/transnational programmes, so it is important for policy to clarify how quality is assured and which entity is responsible for ensuring it.

The review found mixed evidence on whether cross-border/transnational education programmes directly support graduate employment. Employment was directly enhanced in cases where foreign companies from the country where they had studied hired graduates or when programmes were made vocationally relevant. Effects may also be indirect, as graduates use the skills and qualifications acquired to find jobs.

Evidence suggests a number of benefits of these programmes, such as greater cultural awareness and improved qualifications and language skills. But there is little evidence that such programmes increase enrolment in higher education.

Partnerships are key to provision of cross-border and transnational education. Evidence indicates that North-east Asian countries look to North America for partners, while East Asian universities prefer partnerships within their own region. These preferences might be considered in policies to promote such partnerships.

More and better studies are needed to assess both enrolment and the outcomes of programmes, especially with regard to employment. Data on enrolments are hard to find, but appear to be fairly few even among developed countries. Recent European data indicate that learning mobility of students into the European Higher Education Area (EHEA) averages about 2.5 percent, with even less movement of students from the EHEA to elsewhere. Furthermore, developing countries may lack sufficient capital or the independent wealth to sustain significant transnational activity (Daniel et al. 2005). Further research might explore the needs of developing countries to determine how cross-national programmes can support greater accessibility and affordability of higher education.

5.4 Evidence on open and distance learning (ODL)

5.4.1 Quality/type of studies

Open and distance education occurs where there is separation between the learner and teacher in time and space. The delivery modes may include television, radio, audiocassette, internet/computers or printed materials. Service delivery may be supported by ICT-based systems (e.g. receiving course materials, sending assignments, counselling or guidance). In some situations, students may gather in learning centres or residential educational institutions for some aspect of the learning programme. Our initial search identified one Tier 1 study and 27 Tier 2 studies that met the criteria for inclusion. These covered a wide variety of studies, ranging from small-scale surveys of students in a single programme or institution to surveys and administrative data for thousands of students participating in distance education across a country or region.

Most of the studies gathered survey data from students and evidence about the quality of the education received; a few included data on access/enrolment. Very few provided information related to gender issues, and these were mainly based on enrolment data. Some studies looked at perceptions of open education in comparison to traditional classroom-based education. Several studies discussed the development of distance/open education in a particular country and challenges faced in implementation.

The sheer variety of studies in this category makes it difficult to draw conclusive findings on the outcomes of interest to the review. Studies mainly used small, selective samples and the issues identified may be highly specific to a particular programme or to the conditions in a particular country. A further complication is that many open or distance education services provide both higher and secondary education, and studies did not always distinguish those outcomes pertaining only to higher education.[12]

Given these limitations of the research, the discussion below draws out themes and examples from the research reviewed.

5.4.2 Evidence/results

5.4.2.1 Access and reach

Distance and open education is seen as essential in many developing countries to meet the high demand for higher education that cannot be satisfied via traditional means and in an affordable way. Several studies provide data that illustrate the reach of distance or open education. Abdon et al. (2007), for example, reported on

[12] For example, Islam (2011) reported on open and distance learning in Bangladesh, where 70 percent of enrollees were in the Open School for secondary-level education.

a small pilot programme in Cambodia for providing business education through community information centres. They found that e-learning was able to successfully deliver higher education opportunities to underserved provincial students and to female students. Li and Chen (1999) reported that the China Central Radio and TV University (CCRTVU) accounted for 14 percent of higher education graduates from 1979 to 1996. Enrolment of students in rural areas was about 33 percent and equivalent to that of conventional universities. Other studies also showed lower enrolment rates for rural students (Rashid and Sarker 2008, Senaratna et al. 2001).

In terms of affordability, Olakulehin and Panda (2011) found that in a random sample of students, private costs for those studying at the National Open University of Nigeria (NOUN) were significantly lower than for students enrolled at traditional universities (e.g. University of Lagos). NOUN students spent about half as much as traditional students on pre-entry activities, such as prospectus and application fees, internet connectivity, transportation and counselling. Costs associated with study were about 30 percent less for NOUN students mainly because they did not pay for accommodation or extra tutorials. Even though lower costs for distance learning may improve access for students who could not otherwise afford higher education, it is still important to understand the types of costs that these students incur and whether financial aid might result in increased access.

The studies showed variable levels of access to distance learning technologies. Access to television, radio, audiocassettes and print appeared to be better than access to ICT-based technologies (Aguti and Fraser 2006). Several studies noted problems with access to the internet or computers in African countries (e.g. Aguti and Fraser 2006, Chifwepa 2008, Eteng and Ntui (2009) Olusola and Alaba 2011) or lack of skills to fully utilise them (Aguti and Fraser 2006, Chifwepa 2008, Olusola and Alaba 2011). On the other hand, Russian students reported having high levels of access to computers and skill in using them (Prokopenko and Baksheeva 2008). Even when students are positive about ICT-based learning or services, other media are likely to remain the mainstay for ODL in some countries until ICT-based technologies, and the infrastructure needed to support them, become more widespread.

To optimise the potential reach of distance or open education it is important to understand the barriers that prevent wider access, such as access to certain technologies or cultural preferences for traditional classroom-based education provision, the poor reputation of non-traditional delivery (such as correspondence courses), or specific characteristics of ODL students (more likely to be older, with family responsibilities, employed and in part-time study than traditional students). Barriers to wider provision are not necessarily universal and should be considered within a specific country context. For example, studies identified preferences for traditional higher education (face-to-face model) over distance education in Turkey (Ruzgar 2004) and Russia (Prokopenko and Baksheeva 2008), while students in Nigeria (Ojo and Olakulehin 2006) Pakistan (Hussain 2007) and Romania (Vasiu et al. 2005) were found to have a positive view of ODL in comparison to traditional education.

Distance and open education can also be improved through the implementation of proper student support mechanisms. In a study utilising multiple regression and path analysis on individual-level survey data, **Ojokheta (2010)** found that the strongest predictors of student persistence and success were the learning conduciveness of the environment and the provision of student support services. Tutor response patterns and students' perception of course materials were also found to be important.

5.4.2.2 Quality

Open and distance education can show equivalent outcomes to traditional higher education. This is important because it helps assuage fears that ODL is of lower quality than traditional campus-based education. Raza (2008) studied student outcomes for a sample of ODL institutions in South Asia (in India, Bangladesh, Pakistan and Sri Lanka) where ODL has longevity, is well-developed and enrols large numbers of students. The evidence indicated that ODL institutions play a significant role in human resource development in these economies, and comparative data on pass rates suggested that the institutions achieve similar pass rates to conventional institutions (although success rates vary across types of institutions and programmes).

However, the same study revealed that distance learning programmes experience high drop-out rates for a variety of reasons. Completion rates appeared to be better at the two ends of the education cycle – for certificate programmes that could be completed in six months to two years and for postgraduate programmes (1–4 years). Completion rates were generally poorer for intermediate levels of qualification (diploma or bachelor programmes, which could take up to four and eight years, respectively). Wastage rates (students who withdraw and those who fail) at the intermediate levels were also high, because of both dropping out and failure in examinations. Many students who enrolled never actually took a class, and many who did did not complete even one course. Non-completion rates appeared to be higher in more technical subjects. High drop-out was also found to be a problem in a study of ODL students pursuing a diploma in youth development work at Bangladesh Open University (Rashid and Sarker 2008). Over three cycles of students (1999–2002, 2002–04 and 2004–06), drop-out rates were 51 percent, 41 percent and 67 percent, respectively. Similarly, Ariadurai and Manohanthan (2008) reported poor completion rates in three engineering degree courses at the Open University of Sri Lanka. Rates in pure mathematics, applied mathematics and properties of materials were about 47 percent, 50 percent and 76 percent, respectively.

Other researchers have compared student satisfaction with ODL and traditional studies. Li and Chen (1999) gathered satisfaction data from a random sample of over 4,000 students who attended either a conventional institution or a TV-based distance learning programme. Distance learning students were less satisfied than students at conventional institutions with regard to equipment and facilities, library facilities and teachers. Satisfaction was generally lower for distance

learning students in rural locations. These differences were attributed to the fact that conventional universities and urban universities are more highly resourced. Prokopenko and Baksheeva (2008) surveyed 1,500 Russian students who were enrolled either in distance education or in regular daytime university courses. The survey found that about 95 percent were satisfied with the traditional model, but only 57 percent of those in the distance model were happy with it; 44 percent preferred the traditional form (face-to-face interaction with the instructor, attending lectures, seminars and counselling in the traditional way).

Studies that gathered satisfaction or programme evaluation data from students suggested some specific issues that might be addressed in design and implementation of distance learning programmes. Important areas defined by students included: comprehensive feedback on assignments (Gujjar et al. 2009, Hall and Marrett 1996); instructor support (Sahin 2007); interactive counselling (Hall and Marrett 1996;); general office support services (Gujjar et al. 2009); face-to-face tutorials (Liu et al. 2008, Prokopenko and Baksheeva 2008); ensuring that the degree obtained is recognised (Vidanapathirana et al. 2001); better facilities, such as libraries and computers, at regional centres, up-to-date course materials and qualified teachers (Hill 2009); training in use of ICT technology (Aguti and Fraser 2006); and training about and use of distance learning technologies (Ariadurai and Manohanthan 2008, Hill 2009).

A study by Sahin (2007), for example, used the Distance Education Learning Environments Survey (DELES) to assess the relationship between student satisfaction and six predictor variables in a sample of 917 Turkish undergraduates. A regression analysis showed that four of the DELES predictor scales – personal relevance, instructor support, active learning and authentic learning – were significantly related to student satisfaction. The strongest predictor was personal relevance, suggesting that students were most satisfied when they could link course content with their personal experiences. In addition to support from the instructor, students appreciated that distance education supported active learning and course material that incorporated real life examples and cases.

Liu et al. (2008) conducted a follow-up survey of over 17,000 graduates of CCRTVU between 2002 and 2004 and also a small sample of their employers (about 1,000). On average, students gave high marks to all of the aspects evaluated: learner support, delivery and effectiveness of teaching, curriculum design and learning resources. Fifty-eight percent of graduates' employers rated them as 'excellent' and a further 37 percent rated graduates as 'fairly good'. In evaluating specific characteristics of graduates, employers gave generally high marks for morality and professional ethics, work performance, knowledge and ability.

Only one study, limited to a single cohort, looked at employment of ODL graduates (bachelors of science, law or technology) at the Open University of Sri Lanka. Eighty percent of graduates had jobs, mainly in the government or semi-government sector. Most of these were in the same job they held while studying. Sixty-four percent took from five to 10 years to complete their studies. The majority of LLB and BSc graduates were satisfied with the recognition of their

degrees in comparison to degrees from conventional universities (Senaratna et al. 2001).

5.4.2.3 Gender

Few studies looked at gender issues, and these mainly reported on enrolment. Islam (2011) reported twice as many female enrolments at the Bangladesh Open University in comparison to conventional higher education institutions (although it is not clear from the data how many females were enrolled at the secondary-level open school).[13] Abdon et al. (2007) reported that over 50 percent of 271 students participating in an e-learning programme in Cambodia were female. On average, they achieved significantly higher final course marks than male students did. Rashid and Sarker (2008) reported enrolment in three cohorts of students in the youth development work diploma programme at the Bangladesh Open University. The same trend was found over three enrolment cycles – female participation was significantly lower than male participation, at 17 percent, 16 percent and 13 percent, respectively. Women comprised 40 percent of students who graduated with a BA degree in social sciences from the Open University of Sri Lanka in 1996 (Vidanapathirana et al. 2001).

Table 5.2 summarises the Tier 1 studies on ODL.

Table 5.2: Tier 1 evidence on open and distance learning (ODL)

Study setting and details	Findings
Ojokheta (2010) Country: Nigeria Intervention: Method: Multiple regression analysis and path analysis, on individual-level survey data	The strongest predictors of student persistence and success in distance education were the learning conduciveness of the environment and the provision of student support services. Tutor response patterns and student's perception of course materials were also found to be important. Student's home background was insignificant.

5.4.3 Summary, policy implications and further research

ODL partly aims to increase access to higher education and at a lower cost than traditional institution-based provision. The research identified several barriers to wider access through ODL: **lack of access to ICT-based technologies**; cultural

[13] Tubaishat et al. (2006) studied ICT experiences in two universities, located in Jordan and the United Arab Emirates. They hypothesised that ICT might benefit female students in a more restricted society (United Arab Emirates) by providing a more comparative learning environment to women who study in western societies where higher education is not gender-segregated or in more liberal Arab societies (Jordan). Although the findings were interpreted as supporting the hypotheses, a flaw in the study design makes the conclusion unsound (comparison was confounded by including male students in the Jordanian university sample).

preferences; poor image or reputation in comparison to traditional higher education provision; and characteristics of the student population (e.g. older, with family responsibilities and attending part-time). These barriers are not universal, however, so policy related to ODL provision must be tailored to the situation in a particular country.

Quality of ODL is often examined in comparison to traditional provision; for example, does it produce similar outcomes and levels of student satisfaction? **Evidence suggests that ODL can achieve similar pass rates to traditional education, but this differs across types of institutions and programmes.** On the other hand, drop-out and lack of completion rates in ODL were high, for various reasons. ODL students appeared to be less satisfied in comparison to their peers attending traditional institutions. **Better support services and facilities and ensuring relevance of the curriculum are some ways to increase satisfaction.**

The limited studies on enrolment in relation to gender yielded mixed results, so it is unclear whether ODL will help increase female enrolment.

Most of the studies in this category gathered data from small, non-generalisable samples of students in a single programme of study or ODL setting. Although these studies may have value for programme improvement, it remains essential to gather more systematic data at the national level to provide the basic information needed to assess how ODL may be contributing to access and quality in higher education.

The body of research identified for this review appears to be uneven with respect to nationality, with more studies carried out in African nations than in other parts of the developing world.

As was the case with cross-border or transnational education, more and better studies are needed to assess both enrolment and outcomes of ODL programmes, especially with regard to employment: only one study in this review provided data on graduate employment, and another gathered employers' perceptions of graduates.

Few studies examined gender-related issues, apart from reporting enrolment figures, so more work is needed in this area.

Gathering completion data is more difficult with ODL because students have a longer time to complete than those in conventional institutions, and even where institutions specify a fixed point for completion students may be allowed to re-enrol. Future research will need to attend to this type of difficulty.

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students? s results

Summary

- **Evidence suggests that the learning conduciveness of the environment and the provision of student support services have a strong impact on student persistence and success.**
- ODL can increase reach and access, but many countries face barriers to wider access. Barriers to wider access differ between countries, so policy-makers must carefully consider the country context in developing ODL opportunities.
- ODL has high drop-out rates, which suggests a need to better understand the underlying reasons for lack of completion and for designing appropriate support mechanisms to improve completion.
- Comparative studies suggest that ODL students are less satisfied than their peers in traditional education settings.
- It is unclear whether ODL promotes access for females.

Variations identified in outcomes across types of programmes need to be examined in more detail. For example, to what extent are higher completion rates explained by the time frame of the programme (higher completion in shorter programmes) or by the difficulty of the material? ODL may not be as effective as university programmes in all areas, so policy-makers and students need to know which programmes are likely to meet with higher success. Otherwise, it may be a waste of time and effort for all involved.

5.5 Evidence on finance and institutional type

5.5.1 Quality/type of studies

The interrelated topics of financial aid, government subsidies and institutional type generated the greatest number of studies overall. Our search revealed 15 Tier 1 and 67 Tier 2 studies that met the criteria for inclusion. Breaking the results down by category, we found 10 Tier 1 and 51 Tier 2 studies on financial methods of provision and policies and five Tier 1 and 16 Tier 2 studies on institutional type. The Tier 1 studies addressed the provision of higher education through public and private institutions and the characteristics of students who attended each type, especially socio-economic status. Many of the studies also addressed financial aid systems including government and institutional grants and loans. Most of the studies were restricted to a single country and in some cases a single region of a country, although a few studies examined policies across several countries. Several of the studies used large survey or administrative data, in some cases representative of a national or regional population. Where these rich data were analysed with rigorous empirical methods, they provided important evidence on the impact of financial and institutional policies on student access.

5.5.2 Evidence/results

Both public and private institutions are important providers of higher education in many developing countries, but countries differ significantly in terms of organisational, regulatory and financial arrangements.

5.5.2.1 'Free tuition' policies

In Argentina, like many countries, public universities are open to all students with a high school diploma and charge no tuition. Limited public funds and great demand among students lead to overcrowding and raise concerns about quality and efficiency at public universities. Studies found that public university graduation rates were low and those who did graduate took 60 percent more time than the nominal duration of their degree programmes **(Rozada and Menendez 2002),** yet, private institutions enrolled only a small proportion of total students (de Cohen 2003).

Rozada and Menendez (2002) used data on students in the Buenos Aires area to examine student and family characteristics. As in the **Goyette (2012)** study in Vietnam, **Rozada and Menendez** found that the family income of Buenos Aires students attending private universities was somewhat but only slightly higher than those attending public universities. University attendees in general were drawn from the higher income groups. They found a very strong positive association between family income and the propensity to attend a university, whether public or private. The authors (as have others) argued that the large subsidies to the public institutions are thus inefficient since they largely benefit upper-income families.

In response to populist pressures, Ecuador eliminated public university tuition fees after 2008 **(Post 2011)**. **Post** found that attendance rates were rising among all social and economic classes but the largest effects were among more advantaged populations. Although the stated goal of free tuition is to benefit the poor, much of the subsidy actually benefited families from upper and middle socio-economic statuses.

Slovakia also does not charge fees at public universities, but there may be hidden costs to securing a place. Caplanova (2003) surveyed 489 recent graduates in Slovakia across institutional types. Caplanova found that students perceived that paying bribes was an effective way to access tuition-free public universities. Many more public students than private ones said that bribery was an effective means to admission to their institution. The survey also found that private graduates were more likely to be employed than public graduates (92 percent versus 80 percent held a job at the time of the survey), suggesting that the quality of education received was at least comparable to the public institutions.

5.5.2.2 Dual-track tuition policies

Providing free public education to all qualified students is infeasible for most governments in the developing world. Free tuition policies discussed above essentially lead to some sort of rationing of the publicly funded places. In this section, we examine various forms of dual-track admissions to ration public support.

In East Africa, public universities now operate a dual-track admissions system: free tuition to the highest scoring students with paid places available to lower-scoring students. Marcucci et al. (2008) offered a review of these dual-track admissions policies in Kenya, Uganda and Tanzania. The policies allowed governments to maintain a political commitment to 'free' university education, while in fact charging many students for their education. To take a rather extreme example from the research, at Uganda's leading university some 80 percent of students paid fees to attend.

Oketch (2009) explored student perceptions of these higher education policies in Kenya using a survey of 200 non-representative high school students. Oketch found that students had a strong preference for the more prestigious public institutions and were willing to accept this dual-track system as a way of expanding access to the public institutions. They preferred to obtain a free place, but they would pay if necessary.

Ishengoma (2004) illustrated the effects of this dual-track admission policy at Tanzania's most prestigious university. The government had limited its willingness to fund students at this university, which resulted in increasing numbers paying fees to attend.

5.5.2.3 Financing the cost of education at public and private institutions

Governments that desire to expand access within a limited budget are turning increasingly to cost-sharing policies that include tuition charges, grant aid and student loans. Mingat and Tan (1992) offered an early review of the rationales for moving to greater cost sharing in developing countries.

Espinoza (2008) reviewed Chile's strong moves from public to private provision of higher education. In 1980 just eight universities served the higher education needs of the country. Although a mix of public and private control, all received the majority of their funding from the government. Starting in 1981, under successive governments, Chile has promoted greater private provision of higher education including universities, professional institutes and technical training centres. Chile has more than tripled its enrolments and its gross enrolment ratio for tertiary education. Most of the growth has come in private institutions that do not receive public subsidies. By 1998, 52 percent of students were enrolled at non-subsidised private universities, institutes or training centres. The enrolment increases, however, were concentrated among the upper half of the family income distribution.

In the 1990s, the Chilean government made more efforts to expand access for lower-income students through scholarships and loans. By 1996, there was significant loan and scholarship funding available to lower-income students, although 52 percent of the lowest-income quintile did not receive either form of aid. Despite the intention to benefit lower-income students, about 20 percent of the highest two income quintiles received these forms of aid. These figures suggest that public support is imperfectly targeted to increase enrolment among low-income students.

Sabir (2003) identified a similar situation in Pakistan: government subsidies for higher education flowed disproportionately to upper-income families.

In Vietnam, admission to both public and private institutions is based on national examination scores and both types charge tuition fees. The public institutions are the most selective, and also have some preferences for under-represented groups. Students who cannot gain admission to public institutions may enter private ones. Student demand is thus managed by effectively allocating a limited number of public places at lower cost first and then making available higher-cost private places to those who can afford them. According to an empirical study by **Goyette (2012)**, the Vietnam private institutions, on average, charged higher tuition fees and other expenses and offered less grant aid compared to the public institutions. The household income of families sending children to private institutions was somewhat, but not markedly, higher than those sending children to public institutions.

The Philippines also has a mix of public and private institutions. In a time when governments are seeking to increase access, the question may be raised whether expanding public places may draw in students who would have attended private institutions and thus limit the effectiveness of public expansion. **Jimenez and Sawada (2001)** examined these issues at the primary, secondary and tertiary level in the Philippines, using 10 years of region-level data. Although they found a significant effect at the secondary school level where increased provision of public places crowds out private supply, they found no such effect at the primary or tertiary levels. They concluded that there was no effect at the tertiary level because the overall provision of higher education was relatively low in the country.

Yang (2011) described the Chinese higher education student aid system. In 2007 the government shifted from a highly subsidised system to one based on student-centered financial aid. The state and institutions offer both merit-based and need-based grants to cover tuition and living expenses. The state also subsidises a student loan system.

Yang (2011) used two large self-reported surveys administered to students. About 24,000 second and third year college students at 82 institutions in the Beijing area completed questionnaires in 2008. Among the survey sample, 52 percent of students received some aid, mostly in the form of merit-based or need-based grants. Only 2 percent of students used student loans. Students receiving aid in

general spent more time on studies and achieved better outcomes. Student loans, however, were largely not associated with any pattern in effort or outcomes; the effects were due to the various forms of grant aid.

About 15,000 recent graduates from 28 post-secondary institutions in 15 provinces completed questionnaires in 2007 in a separate survey. Yang (2011) used propensity score matching to try to reduce the selection bias inherent in estimating the relationship between aid and outcomes. Yang found that aid significantly increased the probability of employment and rates of enrolling in graduate education but had no significant effect on earnings at the time of the survey (which was quite early in the student's career).

In earlier work Yang (2010) found that financial aid was strongly associated with institutional selectivity. While lower-income students received more aid overall, the effect was stronger at the most selective institutions. Thus lower-income students who were not eligible to attend the most prestigious institutions were probably facing significant financial constraints.

Li (2007) found similar relationships in a larger 2004 stratified random sample of 15,000 students from various institutions across China. The researcher particularly examined the 'net price' faced by students, that is, costs minus aid. **Li** found that lower-income students did on average face lower net prices than higher-income students. But the most prestigious institutions charged lower tuition and students received more in grants at those institutions. Students from lower-income families were more likely to attend lower-quality universities. So not only did they access lower-quality institutions, they typically had to pay more to do so. Since merit-based grant aid was less available at these institutions, many lower-income families turned to loans, either government-subsidised or private. About 20 percent of students in the sample did apply for government-subsidised loans. Of these applicants, some 20 percent did not receive the government-subsidised loans and, of these refused, 44 percent obtained private loans, although on less favourable terms than the government-subsidised loans.

Loyalka et al. (2012) used a representative sample of 8,000 students attending higher education institutions in Shaanxi Province during 2008 to examine the provision of financial aid. Need-based aid and student loans were more heavily allocated to lower-income students. But many upper-income students attended more prestigious universities, which received significant government subsidies. Using a different method to examine a similar issue, Zha and Ding (2007) conducted a theoretical welfare analysis informed by statistical data to demonstrate that a high-tuition/high-aid policy was more likely to enable lower-income students to access higher education than general subsidies of tuition, which tended to benefit upper income families.

El-Araby (2011) reviewed financing policies in Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia. He highlighted the importance of coordinating government policies to assist students in financing their education, especially as many of these

countries face challenges in serving enough students through traditional public institutions. El-Arab identified countries that have success with both public and private provision, but as private institutions serve a greater share of enrolments, financial aid policies are becoming more crucial to enable lower-income students to access higher education.

Fahim and Sami (2011) conducted a statistical descriptive review and policy analysis for Egypt. They found that the system for financing higher education in Egypt was inadequate, inefficient and inequitable, and was helping perpetuate the rigid class structure. They recommended raising tuition fees to approximate the cost of instruction and targeting government subsidies to the neediest students, while encouraging high-quality private non-profit institutions to develop.

5.5.2.4 Income-contingent and standard student loans

Cheng (2011) examined student loans at a single university in Wuhan City, Hubei Province, China using a survey of two consecutive cohorts totalling some 6,000 students. The two-cohort design allowed **Cheng** to use a difference-in-difference estimation method to conclude that the most financially needy students receiving loans were able to spend more on food and work fewer hours during the academic year.

Canton and Blom (2010) described a major Mexican private student loan scheme called Sociedad de Fomento a la Educación Superior (SOFES [Society for the Promotion of Higher Education]). SOFES provides loans to needy students and influences the allocation of scholarships for students who attend member private universities. Under Mexican law, private institutions must offer some scholarships and the SOFES programme recommends the allocation of scholarships of 50 percent of tuition to the neediest students, 25 percent to the next neediest group, and no scholarships, only loans, to students with higher family income (but who still have financial need). SOFES is non-profit but also non-subsidised so it must recover its costs. It offers more generous loan funding to students with higher family income or mortgage-free real estate that can be pledged as collateral. It also offers more loan funding to more marketable academic fields: the highest amounts for engineering, natural sciences, economics and business. Students must also have minimum grades in upper secondary school to qualify.

Using a regression discontinuity design, **Canton and Blom (2010)** found that loans by themselves were not associated with higher levels of student achievement but that the size of the total financial package including loans and scholarships did have a positive association with student grade point average (GPA). The effect was 0.2–0.3 GPA points on a 10-point scale for each 10 percent increase in financial aid package.

In earlier work, **Canton and Blom (2004)** found that the SOFES programme seemed to expand access to higher education. In a 2003 survey of 1,800 students enrolled at three SOFES universities, 48 percent of students said that the availability of the

SOFES loan affected their enrolment decisions. When students were asked what would have happened if they had not received a SOFES loan, 29 percent said they would not have enrolled at university at all, 9 percent would have enrolled at another institution, 39 percent would have required more time to complete the programme, 12 percent would not have been able to finish the programme, and only 11 percent replied that it would not have affected them.

Thailand introduced publicly supported student loans in 1996, lending about US$6 billion to 2.6 million students in its first 10 years. Tangkitvanich and Manasboonphempool (2010) estimated that default rates are likely to be closer to 30 percent compared to the official projections of 10 percent, leading to significant long-term liabilities for the government. Shen and Ziderman (2009) reviewed 44 loan programmes in both developing and developed countries and found that this situation is typical. Expected repayment ratios are below 60 percent in almost half of the programmes studied and the clear majority of the developing country programmes.

In response to some of these concerns, the Thai government switched to income-contingent loan repayment in 2006, but this policy lasted only one year due to political pressures. The policy was modelled on Australia's Higher Education Contribution Scheme, in which tuition charges are financed by collections through the income tax system depending on a student's future income. **Chapman and Lounkaew (2009, 2010)** reviewed the implications of the Thai system. Student loans are clearly important in expanding access to higher education but they come with potentially very large and often hidden public subsidies for interest accumulated during enrolled in higher education institutions and to cover eventual defaults.

Chapman (2006) offered a theoretical and practical overview of the issues involved in income-contingent loans, which are attracting increasing attention in the developed and developing world. Johnstone (2004), however, cautioned that some regions of the world, like sub-Saharan Africa, may lack the institutional structure necessary to implement student loans, either ordinary or income-contingent. These countries lack effective record-keeping infrastructure and may have rudimentary or non-existent taxation systems, which will hinder effective repayment of loans.

5.5.2.5 Aid mechanics

Liu et al. (2011) conducted a randomised controlled trial to test whether offering grant aid before college applications are made influences student and family decisions in rural parts of Shaanxi Province, China. They found that large enough grants (about US$800 in the study) made early enough (at least three months prior to college examinations and applications) did influence students' choice of colleges towards more selective and expensive choices. College costs are rising everywhere, however, so the size of grants necessary to influence decisions is likely to rise as well.

5.5.2.6 Fields of study

In several countries, students study different subjects depending on the institutional type. **Goyette (2012)** found that students at private institutions in Vietnam were much less likely to study education, arts, humanities and social sciences and much more likely to study mathematics, natural and physical sciences, business and law compared with those at public institutions. Wilkinson and Yussof (2005) found differences in Malaysia. There, the private students were preponderantly studying engineering and information technology. Like Vietnam, education, arts and social sciences were almost exclusively studied in public rather than private institutions.

5.5.2.7 Provision within private institutions

In two similar 2010 papers using the same data, **Ling et al. (2010a, 2010b)** examined the factors that contributed to students' perception of service quality at a private university in Malaysia. They found that students' perceptions of service quality were positively related to the quality of contact personnel, access to facilities, and physical facilities. The authors found that students' perceptions of service quality were positively related to the price charged (which is a common finding in some service and goods markets). The study used a limited sample of students only in the field of business and at one university. Thus it is not clear that that these findings can be generalised.

5.5.2.8 Navigating increasingly complex systems

As systems become more diversified, good counselling is important. Khan et al. (2010) surveyed 200 students in three Islamabad, Pakistan, private universities. They found that students identified good secondary school counselling as an important factor in navigating the complex landscape of higher education choices.

Table 5.3 summarises the Tier 1 studies on finance and institutional type.

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students? s results

Table 5.3: Tier 1 evidence on finance and institutional type

Study setting and details	Findings
Canton and Blom (2004) Canton and Blom (2010) Country: Mexico Intervention: Merit- and need-based loans (SOFES) and grants for students studying at private institutions. Method: Regression-discontinuity, quasi-experimental, on individual-level administrative and survey data.	The private SOFES programme provides loans to needy students and influences the allocation of scholarships for students who attend member private universities. Loans by themselves were not associated with higher levels of student achievement but the size of the total financial package including loans and scholarships did have a positive association with student GPA. The effect was 0.2–0.3 GPA points on a 10-point scale for each 10% increase in financial aid package. Total financial support seemed to have a strong association with university enrolment, about 24 percentage points higher for secondary school completers with financial aid. When surveyed, 29% of SOFES recipients said they would not have attended university without the loan. Another 9% would have enrolled at another institution, 39% would have required more time to complete the programme, 12% would not have been able to finish the programme, and only 11% replied that it would not have affected them.
Chapman and Lounkaew (2009) Country: Thailand Time period: 2006 Intervention: Income-contingent and traditional student loans Method: Quantile regressions and simulations to determine rate of return to students and level of government subsidies	The study simulated three different loan approaches: traditional (the Thailand Student Loan Fund, SLF), income-contingent as implemented for one year in 2006 (Thailand Income Contingent Allowance and Loan, TICAL, scheme) and the authors' proposed income-contingent plan. Student lifetime rates of return from investing in higher education in Thailand are high and range from 7–16% per year. All of the approaches enabled students to finance education and had very little negative impact on the students' rate of return. They had, however, very different implications for the government. Under SLF, the net contemporary value of repayments was estimated at 36%, so the government subsidy amounts to 64%. Under TICAL, the net present value was 46% to 55%, so the subsidy was 45% to 54%. Under the authors' proposed plan, the net present value was 81% to 83%, so the subsidy was 17% to 19%. Thus, it is possible to design an income-contingent repayment scheme that significantly lowers the government subsidy without much effect on students' rate of return.

Study setting and details	Findings
Chapman and Lounkaew (2010) Country: Thailand Intervention: Income contingent student loans Method: Analysis of loan subsidies and repayment using cross-sectional regressions on a national labour force survey	Thailand adopted an income-contingent student loan programme for just one year (2006). Student loans are clearly important in expanding access to higher education but they come with potentially very large and often hidden public subsidies for interest accumulated while students are enrolled in tertiary education and to cover eventual defaults. Under a variety of assumptions and programme structures, these hidden subsidies were found to be very substantial in Thailand. The subsidies were allocated far more to low-earning workers since they had the lowest repayment obligations.
Cheng (2011) Country: China Intervention: Government-**Subsidized Student Loan Program (GSSLP)** Method: Difference-in-differences using a two-cohort student survey at a single university	The programme may have led the most financially needy students to spend 528 Chinese yuan more on food and take around 26 hours less paid work during one academic year. These results suggested that the GSSLP has been somewhat helpful to poor students.
Jimenez and Sawada (2001) Country: Philippines Intervention: Public provision of higher education when private sector is present Method: Regression with fixed-effects on regional-level annual data	The study examined whether expanding public places may draw in students who would have attended private institutions and thus limit the effectiveness of public expansion. Although the authors found a significant effect at the secondary school level where increased provision of public places crowded out private supply by about 50% of the expansion, they found no such effect at the primary or tertiary levels. They concluded that there was no effect at the tertiary level because the overall provision of higher education was relatively low in the country.
Goyette (2012) Country: Vietnam Outcomes: Private institutions	Access to Vietnam's public post-secondary sector is very limited. Only about one in 10 students is accepted to prestigious public institutions, where the government partially subsidises the cost of education. Students who cannot achieve admission to public institutions and can afford private tuition, attend private institutions. Average yearly tuition was about US$62 higher at private institutions and other costs there were about $124 higher per year. Students who attended private institutions chose marketable fields, such as the sciences, technology and engineering and business, more than those who attended public institutions. Students at public institutions were more likely to study the arts and humanities or education. Rural students were less likely than urban students to apply to both public and private institutions.

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students? s results

Study setting and details	Findings
Li (2007) Country: China Intervention: Secondary data analysis for enrolment and financing Method: Multinomial logit model on large stratified random sample student survey	Lower-income students on average faced lower net prices than higher-income students. The most prestigious institutions charged lower tuition and students received more in grants at those institutions but students from lower-income families were less likely to attend prestigious institutions and more likely to attend lower-quality universities. Merit-based grant aid was less available at these institutions, so students relied more on loans. About 20% of students in the sample did apply for government-subsidiszed loans. Of these applicants, some 20% did not receive the government-subsidised loans and, of these refused, 44% obtained private loans, although at less favourable terms than the government-subsidised loans.
Ling et al. (2010a) Ling et al. (2010b) Country: Malaysia Intervention: Role of resources on quality Method: Regression on student survey data at one private university	In a limited sample at one university, the authors found that students' perceptions of service quality were positively related to the quality of contact personnel, access to facilities, and physical facilities. The authors found that students' perceptions of service quality were positively related to the price charged (which is a common finding in some service and goods markets).
Liu et al. (2011) Country: China Intervention: Early commitments of financial aid to students Methods: Experimental randomised controlled trial	Providing students with early commitments of financial aid and disbursing the funds to them before they actually entered college (assuming they had passed their exam) and had to pay their fees did not affect the rate of matriculation. The impact on college choice, however, was significant. If grants were large enough (about US$800 in the study) and made early enough (at least three months prior to college exams and applications), they did influence students' choice of colleges towards more selective and expensive choices.
Loyalka et al. (20120) Country: China Intervention: Financial aid from government, university and other sources Method: Non-parametric, semi-parametric and fixed effects estimation on a representative sample survey of students attending higher education institutions throughout Shaanxi Province	Government aid was distributed to students at all tiers of universities and need-based aid and student loans were more heavily allocated to lower-income students. University-financed aid and that from other sources, however, was distributed more to more selective institutions. In addition, the most selective institutions had high general subsidies for their budgets and these benefited high-income students the most.

Study setting and details	Findings
Post (2011) Country: Ecuador Intervention: Constitutional reform to suspend student fees at public universities Method: Multi-variate probit estimation from national individual survey	In response to populist pressures, Ecuador eliminated public university tuition fees after 2008. Specifically, the probability of university study given finishing secondary school decreased by 13% for rural students, 12% for 'mulato' students, 17% for 'black' students, 4% for 'white' students and 16% for 'indigenous' students, but increased by 2% for females, although the effects were significant only for rural and 'indigenous' students. Much of the subsidy represented by free tuition actually benefited students from middle and upper socio-economic statuses.
Rozada and Menendez (2002) Country: Argentina Intervention: Free public education Methods: Cross-sectional regressions on household survey data from greater Buenos Aires region	Almost 50% of students in tuition-free public universities came from the top 20% of the income distribution, and 90% were above the median. Thus the public subsidy to universities flows largely to higher-income families. Almost 50% of the students at tuition-free public universities attended tuition-financed private high schools, some of which charge more than private universities do. The authors concluded that many families can afford to pay tuition, improving equity and efficiency in the system, especially if loans and grants are also introduced to assist lower-income families.
Yusif and Yussof (2010) Country: Ghana Intervention: Subsidised student loans Method: Regression with autoregressive distributed lag (ARDL) on one' university's administrative data	Subsidised student loans had a positive and major impact on university enrolment. Per capita gross domestic product (GDP) was also observed to have a positive and significant impact on enrolment. No evidence was found that future and past earnings affected enrolment decisions.

5.5.3 Summary, policy implications and further research

Many countries maintain policies of free tuition at public universities, either in reality or at least in rhetoric. The research we reviewed shows, however, **the benefits of these policies often flow disproportionately to higher-income groups.** Either motivated by a genuine desire to assist lower-income students or simply because the government cannot afford to provide free public higher education to many students, cost-sharing policies are being implemented around the world. These policies, combined with significant expansions of private institutions in some countries, seem to be expanding access. The research we review shows that **the expansion often benefits higher-income students more than lower-income students** suggesting that there are still refinements needed to many of these policies so that all segments of society can benefit. Further research is needed on the effects of financial aid systems on access among different income and social groups. Such research should inform the design and adjustment of

government policies designed to expand access while providing a sustainable source of finance for higher education systems.

As **Liu et al. (2011)** showed in a limited trial, **if the government is willing to commit grant aid, it is worthwhile making these offers early in the process to encourage students to make choices informed by full information about available assistance.** The same applies to student loan programmes: it is important to give students and families clear information about the available financial options and good counselling to navigate these increasingly complex higher education systems. Finally, promising ideas such as income-contingent loans cannot yet be implemented in many developing countries because they lack the record-keeping infrastructure, legal institutions and tax systems to enable tracking and repayment. Many of these needs are beyond the remit of education researchers, but further research can identify promising practices and infrastructure needs that could someday enable these policy options in developing countries.

It is wise for governments to consider an integrated perspective on financing options and policies that either open more public places or encourage private institutions to do so. Thus it is important for future research to examine the interactions of policies governing private education along with financial policies. Such non-financial policies could include legal frameworks, regulation, quality assurance, performance measurement and information provision.

There is evidence in some settings of differences in the quality or provision between public and private institutions and it would be useful to have further research at the country level, and across countries, to identify these differences more carefully so that policy-makers can design policies to support quality provision in both the public and private higher education systems.

Summary

- **Many financing policies in developing countries disproportionately benefit higher-income families. Free tuition policies require rationing of places**, and sometimes encourage bribery.
- **Cost-sharing and financial aid policies can stretch limited government budgets while providing access to students.** Policies adopted in developing countries include dual-track tuition, private provision, grant aid and student loans. **Provisions for low-income students may not be adequate to equalise access.**
- **Student loan programmes, including income-contingent repayment features, offer the promise to finance expanded access.** But they require regulatory infrastructure for accounting, taxation and repayment, **and they may impose very large future liabilities on the society if the government subsidises interest or guarantees default risk, which may be substantial.**
- **Early commitments help students access higher education. It is important to provide students and their families with clear and specific information about financial aid as early in the application process as possible.**
- Governments should take an integrated perspective. Financing policies interact with public and provision decisions.

5.6 Evidence on technical and vocational education and training (TVET)

5.6.1 Quality/type of studies

The provision of TVET is somewhat complex and may occur at several levels of the education system, including lower- and upper-secondary, post-secondary non-tertiary and tertiary.[14] Post-secondary TVET typically follows on from initial vocational education and training or general education at the secondary level. In addition, TVET can be offered through apprenticeships (which combine higher education and work-based training) or through a variety of short-term programmes to meet the initial training or retraining needs of adults. The sampling method for this review did not distinguish between the various types of TVET provision, which is known to vary significantly across countries. Therefore, it captured studies across the broad TVET spectrum. Our initial search identified three Tier 1 and ten

[14] The European Center for the Development of Vocational Training (Cedefop) defines these according to ISCED levels, with secondary programmes at International Standard Classification of Education (ISCED) level 3, non-tertiary programmes at level 4, and tertiary at level 5 (first stage). It was not possible to distinguish these levels in the reviewed studies.

Tier 2 studies that met the criteria for inclusion.[15] These covered a wide variety of studies, ranging from enrolment patterns in a single programme or institution to case studies or surveys of TVET policies in multiple countries.

Most of the studies gathered administrative data as evidence about access and enrolment. Several focused on access for women and girls. Few provided information about quality or student outcomes, although we did identify three randomised experiments with some outcome information.

Studies mainly drew small, selective samples and the issues identified may have been highly specific to a particular programme, a particular year, or to the conditions in a particular country. A further complication is that some studies combined different levels of TVET (secondary, post-secondary, adult education) and did not always distinguish outcomes pertaining only to post-secondary education.

Given these limitations of the research, the discussion below draws out themes and examples from the studies reviewed.

5.6.2 Evidence/results

There appear to be few randomised trials of vocational education in developing countries, but we identified three such studies in our search. **Maitra and Mani (2012)** also found only the same three studies, including their own. All of these studies looked at training programmes for unemployed or disadvantaged populations that were geared towards employment, rather than TVET offered in post-secondary institutions. However, we include them here because they provide some evidence in relation to improving access for women.

Card et al. (2011) studied the Juventud y Empleo programme in the Dominican Republic between 2001 and 2005. The programme targeted low-income young people (ages 18 to 29) who had not completed secondary education and who were not currently enrolled in an educational institution. Special attention was directed to enrolling women. Private training providers were contracted to provide up to 350 hours of training based on local employment needs. The main purpose of the programme was to increase employability of its participants, but the researchers found a negligible difference in employment rates 10–14 months after the programme. There did appear to be a positive effect on wages, which are 17 percent higher for programme participants, with the largest effect for participants who had some secondary education. The researchers used a measure of the quality of the training provider and found no relationship between that quality and the participant outcomes.

[15] On closer inspection, one of the Tier 2 studies was rejected as not related to TVET or higher education (Lahire et al. 2011).

Attanasio et al. (2011) studied Jóvenes en Acción, a major training programme offered in the seven largest cities of Colombia. The programme reached 80,000 young people between 18 and 25, who were unemployed and who were placed in the two lowest deciles of the income distribution. The programme began with three months of classroom training provided by private training companies selected by competitive bidding. Trainees were then placed with a company for three months of on-the-job training. The researchers found no significant effects on male participants' employment rate or earnings. Female participants, on the other hand, had a 5 percent higher employment rate and 20 percent higher earnings compared to randomised non-participants. Both men and women were more likely to work in the formal sector as opposed to the informal sector. Since the formal sector provides benefits in addition to wages, both men and women benefited from the programme.

Maitra and Mani (2012) studied a New Delhi vocational training programme targeting women aged 18 to 39 in two severely disadvantaged areas of the city. From a pool of 658 applicants, the programme randomly assigned two-thirds of them to receive a rigorous six-month long training programme in stitching and tailoring services. Six months following the completion of training, those offered training (regardless of whether they completed it) were 6 percentage points more likely to be employed (including self-employment). They also had earnings of 150 percent higher than non-participants. These results were notable especially in view of the fact that only 55 percent of the accepted applicants completed the full training. Results for the women who completed the training are even stronger, although they may reflect some selection effects since full completion is probably not a random event.

Results from non-experimental studies of TVET can be organised into several themes. The first concerns access and enrolment. Seeberg and Prange (1991) examined access to technical and professional higher education in China following new enrolment policies to increase access for female, rural and students of low socio-economic status. An analysis of enrolment over three years in four institutions (two each for agriculture or teacher education, random sample of students) revealed no relationship between enactment of the policy and participation of students from rural locations. Overall, 54.6 percent of enrollees were female. They enrolled primarily in teacher education, while rural and male students were more likely to pursue agricultural studies, thus reinforcing cultural stereotypes. Women were also more likely to enrol if they were self-supporting, which indicates an access bias towards higher social class.

Bennell (1998) found that private sector training institutes (PSTI) in Harare, Zimbabwe, had 50 percent female enrolment in 1995, while female enrolment in government-funded Harare polytechnics was 26.9 percent. But PSTI had remarkably little training provision of any kind for the urban poor.

Ayedemi (2001) looked at enrolment in three Nigerian universities where catchment policies favour admission to students living in a particular geographic

area. The study found that admission to tertiary education was not proportional to the number of students graduating from secondary school, suggesting that affirmative action policies were needed to ensure greater balance in access for some ethnic groups. The proportion of females to males was low in many areas; average highest enrolments for women from 1990 to 1994 were in pharmacy (44.9 percent), education (36.4 percent) and the arts (30.5 percent).

A second theme of the studies concerns access for women and girls in TVET and in particular whether participation follows gender-stereotypical patterns. Evidence for such patterns was found with regard to female enrolment in teacher education (Adeyemi 2001, Seeberg and Prange 1991), home economics (Arubayi 2009, Mariro 1999, Okeke 1999), secretarial studies (Arubayi 2009, Bennell 1998, Mariro 1999), clothing technologies (Bennell 1998, Mariro 1999) and hairdressing (Mariro 1999).

Arubayi (2009), for example, looked at enrolment and graduation in home economics and seven vocational subjects in 47 colleges of education in Nigeria in the 2001/02 and 2002/03 academic sessions. Administrative data from the two time periods revealed that high proportions of women enrolled each year (55.4 percent and 55.9 percent, respectively) and graduated (55.9 percent and 57.0 percent, respectively). Home economics was the third most popular course and had the highest percentage of female students in both years (98 percent). In contrast, average enrolment of women in woodwork, metalwork and electronics was about 1.4 percent, 0.03 percent and 15 percent, respectively. Graduation rates for females in home economics in comparison to the other seven subjects showed average graduation rates of 96 percent, followed by 76 percent for secretarial studies. These results confirmed the expected gender disparity with regard to vocational subjects.

Mariro (1999) reported on access of girls and women to scientific, technical and vocational education in Africa from 1996 to 1997 in a representative sample of countries in the region.[16] Results of the surveys were similar in showing low access for girls in industrial, mechanical, building, and electricity areas. Gender stereotypes and bias underpinned low access.

Bennell (1998) looked at provision of vocational education by PSTI in Zimbabwe, among a representative sample of registered and non-registered PSTI. Women were mainly enrolled in secretarial and clothing courses (dressmaking, knitting and tailoring), but also constituted 45 percent of short IT courses (8–25 hours per course).
Okeke (1999) reported on female enrolment in higher education in Nigeria from 1985 to 1991. The data indicate some improvement in female participation over

[16] Countries surveyed were South Africa, Benin, Burundi, Chad, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mali, Namibia, Niger, Senegal, Swaziland, Tanzania, Togo, Uganda, Zambia and Zimbabwe.

that time in enrolments to colleges of education (from about 27 percent to 45 percent) and colleges of technology (from about 13 percent to 34 percent), but not much change in university education (23 percent to 28 percent). The enrolment in colleges of technology reflects the fact that a minority of girls studied the required prerequisite subjects (e.g. mathematics, physics, chemistry and electronics) in secondary school. The percentage of females enrollees in science and technology courses in 1992 was about 23 percent agricultural science; 11 percent engineering/technology; 12 percent environmental design; 23 percent medicine; 18 percent pharmacy; 28 percent sciences; and 14 percent veterinary. Rates of female enrolment in agricultural science and engineering/technology doubled from 1985 to 1991, but halved in pharmacy studies.

A third theme concerns policies directed specifically towards access for girls and women. Case studies in 10 countries[17] focused on the relevance of vocational guidance for women (Miller and Vetter 1996). It found that overall most countries in the sample had policies for equal employment and education for women and girls. Looking more specifically at TVET, the study found some countries had both legislation and national policies that provided for equal access to technical and vocational education for girls and women (Mexico, Turkey, Zambia); some had national policies, but not legislation (India); some had national policies that had not been formally adopted but that were used to provide for equal access to TVET for girls and women (South Africa); some had neither legislation nor national policies (Argentina) and some had policies carried out at the provincial level (Spain). Few countries had specific policies or legislation concerning vocational guidance, even though career guidance appeared to support some important outcomes, including higher levels of employment (Mexico, South Africa) and access to traditionally male-dominated fields (South Africa, Sweden, Zambia). Even when countries have legislation to support equal access for women and girls, however, local implementation of national policies may still preserve cultural stereotypes.

A fourth theme concerns barriers to women's participation. A study by Egenti and Omoruyi (2011) examined the challenges or constraints for women in continuing higher education with a particular focus on the BEd part-time programme at the University of Lagos, Nigeria. In their random sample of 150 students 97 percent reported experiencing challenges, but most also said that the challenges were not insurmountable. The main constraints were time; increasing marital demands; poor economic or financial base; lack of encouragement from employers and spouse; increasing social pressure; and poor psychological disposition.
Miller and Vetter (1996) also identified barriers to participation in their 10-country study. These included student attitudes (Mexico, Zambia); parent attitude (India,

[17] This UNESCO study included six developing countries according to our definition: Zambia, Turkey, Argentina, Mexico and India. The other participating countries were South Africa, the United Arab Emirates, Spain, the Republic of Korea and Sweden.

Mexico, South Africa, Turkey, Zambia); staff attitudes (Mexico, South Africa, Zambia); employer attitudes (India, Mexico, South Africa, Zambia); the social role assigned to girls and women (Argentina, Mexico, South Africa, Turkey, Zambia); shorter school attendance for girls; limited funding for girls and women to attend programmes (South Africa, Zambia); limited programme offerings for girls and women (South Africa, Turkey); and limited family and child care support (India). It is striking that some of the attitudinal barriers and social role expectations were present in both developing and developed countries.

Mariro (1999) summarised barriers to female participation in approximately 20 African countries. The main issues were: continued prejudices, stereotypes and habits that characterised relations between the sexes in Africa; schools' tendency to transmit stereotypes and prejudices about gender; teachers who reinforced stereotypes instilled by families; parental preferences for boys to pursue education while girls did household chores; and lack of encouragement for girls to go into scientific, technical and vocational training and negative reactions to girls who do so. While these inequalities are persistent, they may not be inevitable. Evidence from the study indicates positive results can be attained when public authorities, teachers associations and officials decide to take action.

Finally, a few studies examined employment patterns of women after TVET. Okeke (1999) found that employment figures for women mirrored their enrolment patterns. For example, in colleges of education more female staff had been employed in business education and computer science between 1990 and 1993 than in areas such as woodwork, agricultural science, physics and mathematics. In universities, the proportion of female lecturers in science-based disciplines was also low – 3 percent in engineering/technology and 2.2 percent in medicine. Mariro (1999) reported low percentages of females employed and where employed their work tended to be in civil services, and particularly in education, health and social services and in such positions as clerk and secretary. In the private sector they were more often in the service and manufacturing areas. Essentially, most working women had low-paying jobs requiring few professional skills. In 1992 in Zimbabwe, for example, women made up 28 percent of the labour force in the modern sector (civil service and private and semi-private enterprises), 5 percent of engineers and technicians, 7 percent of mining staff, 35 percent of manufacturing employees, 43.9 percent primary school teachers and 35.9 percent secondary school teachers. They also represented 51.5 percent of workers in the agricultural sector.

Table 5.4 summarises the Tier 1 studies on TVET.

Table 5.4: Tier 1 evidence on technical and vocational education and training (TVET)

Study setting and details	Findings
Attanasio et al. (2011) Country: Colombia Intervention: Jóvenes en Acción, a subsidised vocational training programme Method: Randomised trial, experimental, on individual-level survey data	The programme raised earnings and employment for women. Women offered training earned 19.6% more and had a 0.068 higher probability of paid employment compared to those not offered training, mainly in formal sector jobs. There were no significant treatment effects for males. Cost–benefit analysis of these results suggested that the programme generates much larger net gains than those found in developed countries.
Card et al. (2011) Country: Dominican Republic Intervention: Vocational training programme for low-income young peole Method: Randomised trial, experimental, on individual-level survey and administrative data	The training did not have a positive impact on the probability of having a job, a finding that contradicts several previous quasi-experimental evaluations on similar programmes. An impact of approximately 10%, on average, however was detected for wages. Programme participants were also more likely to have health insurance, conditional on employment. Both results were, however, only marginally significant. The results suggest that there is significant heterogeneity of impacts, with male teens being the group that benefits from the programme. Impacts were not found for women or for young adults. Regional differences also seem to be present. Although small, the impact on wages (if maintained over time) coupled with no discernible employment effect implies that the costs of the program are recovered in two years.
Maitra and Mani (2012) Country: India Intervention: Subsidised vocational education programme for women Method: Randomised trial, experimental, on individual-level survey and administrative data	Women who were randomly offered the training programme were almost 5% more likely to be employed, 6% more likely to look for a job and worked two additional hours per week in the post-training period, on average, compared to those not offered training. After the intervention, women in the treatment group also earned twice as much as women in the control group. A simple cost–benefit analysis showed that the programme is highly cost-effective and there are considerable gains from both continuing the programme in the current location and replicating it in different locations.

5.6.3 Summary, policy implications and further research

The pattern of results across these studies suggests that **women and girls in developing countries continue to face barriers to education and employment, especially in the more technical vocational fields that have been mainly male-dominated.** The fact that barriers and gender stereotypes are evident even in countries with legislative provision guaranteeing both sexes equal rights to

education, vocational training and employment (Mariro 1999) suggests that the barriers are deep-seated and will be difficult to overcome.

The studies point to both policies and programmes that have been implemented to improve female participation in TVET, but these have not always been effective. Further research could be carried out to identify programmes that attempt to overcome obstacles to female participation, as was done in the Mariro (1999) study. It would also be relevant to know whether these efforts are cost-effective – are the results obtained commensurate with the investments made and effort provided?

We identified only three randomised experiments with outcome information. **Two of these showed strong effects on female participants, providing some additional support for adopting policies and programmes that encourage women's access to vocational training.** There is a real need, in general, for more studies of quality and outcomes for post-secondary TVET programmes, in particular employment outcomes.

Summary

- **Randomised studies of TVET aimed at improving employment prospects found positive results for participants' wages and employment, especially for women, in comparison to non-participants.**
- Women and girls continue to face barriers to education and employment, especially in more technical, male-dominated fields, even when countries have legislation to support equal access for women and girls.
- Cultural stereotypes and prejudices continue to present barriers for female participation, which can only be overcome through concerted effort at many levels (government, institutions and families).

The body of research identified for this review appears to be uneven with respect to nationality, with more studies carried out in African nations than in other parts of the developing world. It would be useful to have a wider evidence base that represents all regions of the developing world.

5.7 Evidence on provisions and policies not captured by other topics

5.7.1 Quality/type of studies

Our search found several studies that did not fall into the other categories identified in this review. These provisions range from academic advising to maintaining quality assurance. Of the nine articles in this section, two were Tier 1 and the remaining seven were Tier 2. Many of these studies are single institution studies and are predominantly descriptive in nature.

5.7.2 Evidence/results

Three studies focused on quality assurance, two on higher education institution accreditation in Nigeria, and one on the implementation of the Bologna process cross-nationally. Alani and Ilusanya (2008) conducted a predominantly descriptive study that examined the outcomes of Nigerian institutions that received different levels of accreditation – full, interim and denied. The study used secondary data published by the National Universities Commission (NUC) from 1999 to 2005. The sample contained 36 public, 25 federal and 11 state universities. Findings indicated that that overall, the number of universities with accreditation increased over time, with federal universities faring better with more fully accredited programmes than state universities.

Oribabor (2008) examined the NUC's accreditation exercises on four Nigerian universities from 1995 to 1999. The study used data from questionnaires collected from 400 staff and 200 students at the different universities. The study proposed a null hypothesis, which stated that the NUC accreditation exercise had no significant impact on the administrative structure and efficiency of university staff. Findings from the study supported this hypothesis. A majority of respondents did not feel that the accreditation exercises improved efficiency within the university. The study found that the mean student to lecturer ratio was 23:1, for some classes significantly over the recommended ratio by the NUC, and for every one instructional staff member, there were four non-instructional members.

In terms of quality assurance, Vlasceanu and Voicu (2006) sampled public and private European institutions to examine the implementation of the Bologna process. This study examined institutions in the following developing countries: Poland, Estonia, Romania, Turkey, Ukraine and Russia. The researchers obtained surveys completed by an official from institutions that belong to the European University Association. Overall, the private higher education institutions were better informed about the Bologna process, but the study found that the private institutions had implemented fewer recognition procedures and had less cooperation with national recognition bodies. The majority of the private higher education institutions had implemented credit transfer and credit accumulation systems, and took into greater consideration the employability of their graduates.

Muola et al. (2011) studied the impact of academic advising on academic performance at Laikipia University College of Egerton University in Kenya. The study used data from a questionnaire administered to 187 students (53, 41 and 93 first, second and third year students, respectively). The data analysis showed that a large percentage of first and second year students sought academic advice, but only 4 percent of third year students sought it. Students critically needed guidance in maintaining high grades, handling academic workload, setting academic goals, and setting career goals. An equal percentage (14 percent) of men and women sought academic advice. Due to the low percentage of students seeking advice, the study was unable to conclusively determine whether or not it had any impact on academic performance.

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students? s results

Muoghalu (2010) examined the response of Obafemi Awolowo University (OAU) in Nigeria to the Gender Equity Project (GEP). GEP is a collaboration between OAU and the Carnegie Corporation of New York, USA, to help bridge the gender gap and adopt strategies to increase female participation in the university. GEP employed the following strategies: community outreach and forums, workshops and seminars for staff and students on gender sensitisation, a gender equity bulletin, a gender policy for the university; scholarships and fellowships for female students and staff; and an anti-sexual harassment policy. The study found that from 1992 to 2002, there had been a rise in female undergraduate and postgraduate students. There also was a rise in female academic staff during those years.

Another study also looked at Nigerian universities, but focused on part-time programmes offered at satellite outreach branches at three universities. Adeyemi and Osunde (2005) took a sample of 1,000 students from these institutions to determine how the students at outreach branches compared to the students on campus. The study found that students on the main campus perceived their experiences of teaching manpower, instructional facilities, campus programmes and quality of course content to be more favourable than students at the outreach branches. In terms of academic achievement, main campus students performed better than their peers at the outreach branches in four of the five fields examined. In accounting, students at the outreach branches performed better, which may have stemmed from the better-qualified part-time instructors (who were working accounting professionals) at the branches versus the less-qualified instructors on the main campus.

Perez-Arce (2011) surveyed applicants to a public college in Mexico City to determine the educational attainment of students who were either accepted or deferred. At this institution, students are accepted via lottery, and those students not accepted must defer for one year. Despite earlier models that predicted that deferrals had little impact on student enrolment, Perez-Arce found that admitted individuals were more likely than deferred individuals to attend any college by almost 20 percent. The study also found that those students who earned more during their deferral year were less likely to enrol at the university. The researcher suggested that to increase the likelihood of individuals enrolling in institutions, especially those who are more economically disadvantaged, the number of enrolment slots should be increased.

Using individual-level administrative data from Colombia, **Barrera-Osorio et al. (2008)** found that providing conditional cash transfers upon on graduation from secondary school and matriculation into higher education (rather than transfers based on graduation only or secondary school attendance) substantially increased participation in higher education. Specifically, the cash transfers increased the number of high school students continuing to tertiary education by 48 percentage points. These results have important implications for the design of conditional cash transfer programmes.

The final article that focused on the provisions and policies that were not captured by other topics is Mansoor's (2003) work examining the language policies in

Pakistan – more specifically the requirement for English and the lack of course materials and resources necessary for instruction in Urdu. In a national survey administered to 2,136 students, 121 faculty in public or private colleges and 63 parents, the researcher examined attitudes about native language, availability and quality of resources in different media, and English support programmes. The study found that students studying in the private sector had higher monthly household income compared to students studying in the public sector. Thirty-six percent of students from the public sector reported insufficient facilities at the graduate level. There was also a general perception by the public that the facilities for English were much better in the private institutions. Regarding the availability of materials, far more were available in English (58 percent) than in Urdu (31 percent) in both public and private sector institutions. Finally, there was a significant difference between private and public institutions regarding high/excellent quality in terms of English courses, texts/materials, teaching methods and overall quality.

Table 5.5 summarises the Tier 1 studies on provisions and policies not captured by other topics.

Table 5.5: Tier 1 evidence on provisions and policies not captured by other topics

Study setting and details	Findings
Barrera-Osorio et al. (2008) Country: Colombia Intervention: A conditional cash transfer based on students' graduation from secondary school and matriculation into higher education Method: Simple difference estimators and ordinary least squares (**OLS**) regression, quasi-experimental, on individual-level administrative data	Providing incentives conditional on graduation from secondary school and matriculation into higher education substantially increased participation in higher education. Specifically, the cash transfers increased the number of high school students continuing to tertiary education by 48 percentage points.
Perez-Arce (2011) Country: Mexico Intervention: Random assignment of applicants into a group that can enrol in college immediately and a group that can only do so after one year. Method: Probit and linear regressions, quasi-experimental, on individual-level survey data	One and a half years after the first group enrolled, individuals in the immediately admitted group were 19 percentage points more likely to be enrolled than those that had to wait. This implies that offering more slots in a public college increases educational attainment. Specifically, one additional slot increased the attainment of at least 0.3 individuals of the applicant pool. Offering them to individuals of poorer backgrounds, furthermore, had an even larger effect. Examining this result, the study found that within-individual variation in opportunity costs is an important element in determining educational attainment, a finding that may have implications for how systems of higher education systems should be designed.

5.7.3 Summary, policy implications and further research

The research reviewed in this section covered a variety of topics and countries. Our search identified very limited empirical research on accreditation, academic advising and part-time programmes, so there is a need for more research in each of these areas. None of the studies mentioned in this section, with the exception of Muoghalu (undated), examined policies that resulted in increases in access for disadvantaged students or women – rather they examined perceived quality or existing provisions of university programmes. While the studies identified in this category provide little evidence on the effectiveness of approaches to increasing access or quality, they do suggest several tentative themes for further research.

First, there is a perceived disparity between private and public institutions. In Pakistan, for example, significant differences between private and public institutions regarding the availability of instructional materials, teaching methods and overall quality were identified in the research. Also, private universities in Russia and Ukraine were better informed about the Bologna process but implemented fewer recognition procedures and had less cooperation with national bodies, on average.

Second, while satellite (or branch) campuses may effectively increase access to higher education for students in historically underserved areas, the quality of these campuses may be lower than their parent institution. Students on the main campus may find the number of faculty, instructional facilities and campus programmes and the quality of the courses lacking relative to the main campus. Main campus students may also perform better in certain subjects.

Third, the timing of acceptance into higher education is important. Research described in this section has demonstrated that deferring college admission decreased the probability of going to college. This finding is both robust and significant. A policy implication of the finding is that offering additional slots in public higher education institutions may increase education attainment.

Fourth, more data are needed to determine if policies like academic advising or part-time programmes have an impact on student outcomes. Currently the studies have relied upon grades to determine impact, which may not be a sufficient indicator of outcomes, and in the case of Muola et al. (2011) there were too few data to determine impacts.

Finally, there is the need to explore the link between a rise in enrolment and the implementation of particular policies and practices. For example, Muoghalu (undated) attributed the increase in numbers of female students and staff to successful implementation of various strategies used by GEP, but the increase may be due to other factors.

Summary

- **Rationing of access by offering deferred college admission decreases the probability of the deferred students enrolling in college at all.**
- The quality of satellite campuses may be lower than that of their main campus.
- Evidence on the impact of services, such as academic advising or part-time programmes on academic performance, is inconclusive.
- Gender-focused outreach and education programmes may increase female participation in higher education.

6. Limitations

6.1 Lack of high-quality studies set in developing countries

The main limitation of this systematic review is the relative dearth of studies that have evaluated the impacts of methods of provision or policies for improving access to and the quality of higher education in developing countries. While our search identified (but excluded) several studies set in developed countries, it failed to identify a large number of studies set in developing countries. The highest-quality studies, moreover, overwhelmingly focused on financial policies and programmes, such as cost-sharing programmes and student loan programmes. For all other methods of provision and policies, the evidence was significantly lacking, scattered, and of poor quality. As the conclusions in this review are based on a small number of studies, they should therefore be cautiously interpreted.

There is also some concern that the definition of quality we used in this review may have itself contributed to the review's failure to uncover a larger body of evidence. Indeed, our definition of quality, which focused on student-centered performance indicators rather than other metrics such as employer satisfaction or the satisfaction of other legitimate stakeholders, for instance, may have conceivably resulted in the exclusion of some useful studies. We believe this concern, however, is largely mitigated by the fact that we initially screened studies based on the method of provision or policy addressed, methodological approach and setting, rather than on outcomes. It was not until the final full-text screening and coding stage that studies were included or excluded based on the outcomes they measured. Furthermore, we found that at this stage few studies were excluded based on their choice of outcome variables and that most studies excluded for irrelevant outcomes, moreover, focused solely on private economic returns to education rather than outcomes such as employer satisfaction, which may have been of some interest to users of this study. We therefore argue that the fact we uncovered a relative dearth of evidence is a result of the actual lack of research studies on the included topics rather than their inadvertent exclusion on account of certain definitional issues.

6.2 Generalisability

The included studies examined a wide variety of outcomes. While we expected to find a large body of evidence on student outcomes such as enrolment and graduation rates, few studies measured such outcomes. Instead, the included studies often focused on more subjective outcomes such as student satisfaction. The number of provisions and policies addressed coupled with the sheer variety of the outcomes measured meant that few studies in this review examined the impact of similar interventions on similar (or the same) outcomes. For this reason, comparison of the outcomes across multiple studies was often not possible. This in turn made it difficult to generalise across studies to identify the impact of certain methods of provision or policies on the outcomes measured. The fact that many of

these studies utilised small samples drawn from a limited number of institutions or programmes, moreover, further exacerbated this problem.

A second issue that posed problems for the generalisability of the evidence was the uneven distribution of studies across countries. Although our search included nearly 200 countries, we found evidence for only about 50 countries. More importantly, however, over a third of the studies were set in three countries: China, India and Nigeria. Thus, the conclusions of this review may not be applicable to most developing countries, not only because most of the evidence is drawn from a small number of countries but also because these countries may differ systematically from others. China and India, for instance, are classified as newly industrialised, unlike most of the other countries represented in the sample. What may work for them, therefore, may not achieve the same desired results in less developed nations.

6.3 Comprehensiveness

While our goal was to be comprehensive and systematic in searching the literature, it is always possible that relevant articles were missed, particularly among unpublished studies or grey literature. However, we believe that our search strategy, which included a number of databases of published literature, websites and databases of unpublished and grey literature, snowballing, and contacting experts, should have mitigated this limitation.

7. Conclusions and recommendations

7.1 Evidence/results

Despite the limitations discussed in Section 6, the review identified several examples of provision and policies for increasing access to and the quality of higher education in developing countries. While their overall effects on the outcomes of interest are ambiguous, the **review notes positive effects for many of the interventions. Moreover, while many studies did not provide evidence on how these outcomes vary by gender,** several did address this issue and highlighted key areas of concern for improving not only access to and the quality of higher education, but for promoting equity as well.

Affirmative action is one way to increase enrolment for students who may have faced discrimination due to their race, caste (India), gender or geographical location. Overall, most of the studies addressing this issue indicated that affirmative action policies can increase access to higher education for the targeted groups. But class-based affirmative action programmes may displace non-targeted groups, such as females. In addition, admitting less qualified applicants under affirmative action may confer some benefit on those admitted, but perhaps less of a benefit than the populations who are displaced by the policy would have received.

Several financial programmes and policies proved promising for increasing access to higher education in developing nations. Many countries have operated a traditional model of publicly supported universities charging no tuition, but rationing access in some way since they cannot afford to meet all student demand. **The studies show that these traditional approaches disproportionately benefit students from wealthier families.** Recently, countries have implemented a variety of cost-sharing strategies.

One way to ration publicly funded education and provide revenue for the system is through dual-track tuition policies, where the government provides a limited number of free places and institutions can charge fees for remaining places. The studies revealed that these policies may effectively reduce the government's burden of financing higher education without discouraging enrolment as long as students can finance their enrolment. While students understandably preferred free education, some studies found that students were nonetheless willing to pay for quality.

Private provision of higher education is another identified solution. A system that includes both public and private higher education institutions may enable governments to better meet student demand and to shift some of the burden of providing education to private providers. Private institutions, however, are often more expensive than public institutions. Their quality, furthermore, also varies greatly. **Grants, scholarships and other subsidies are therefore often necessary**

to ensure that private education is accessible not only to the wealthy. Countries should carefully consider the best combination of public and private institutional supply along with financial aid to enable access. Quality assurance measures or restrictions on government-backed loans, moreover, may be necessary to ensure some level of quality among private institutions.

Student loans, including both standard and income-contingent loans, are an increasingly common tool for improving access while managing limited government budgets. The studies demonstrated that loans given to needy students may increase their ability to cover their living expenses while enrolled at higher education institutions, decrease the number of hours they have to work and increase their grade point averages. While important, however, these policies come with potentially large and often hidden subsidies due to accumulated interest costs and eventual loan defaults. Many countries may be taking on large future liabilities that will burden future generations at both the individual and societal level. In addition, many developing countries may lack the institutional structures (such as payroll tax collections) needed to support student loan systems.

Studies that examined various other provisions and policies yielded less conclusive results. Studies on cross-border and transnational provision provide little evidence on their effectiveness in increasing access or quality; however, they do suggest that it is important to incorporate students' perspectives when evaluating cross-border or transnational projects. Studies that gathered student survey data revealed some useful information with regard to how students define 'quality' and what matters to them.

Studies on technical and vocational education noted differences in enrolment in technical subjects for men relative to women. These differences may have been due to factors such as inadequate preparation at the secondary level or cultural attitudes towards jobs for which women are suited. The studies did not, however, offer any concrete solutions to these problems. **A few randomised trials of vocational education programmes showed significant gains to lower-income women who participated.** Although these studies were too limited to generalise from, more research could confirm how general these effects may be.

7.2 Future research

The shortcomings of the research noted earlier in this report demonstrate the need for improved data. Studies using larger datasets that span multiple institutions are needed to yield more robust and generalisable findings for some types of interventions. More studies that use randomised trials or natural experiments to measure the impact of a particular method of provision or policy for treated versus control groups would also be valuable. In cases where this is not possible, comparative studies could offer some evidence on the impact of policy interventions. Finally, additional evidence on outcomes of interest, such as enrolment, retention, graduation and employment outcomes, is needed. Because

context matters, however, is not always possible to identify 'one size fits all' solutions.

7.3 Policy implications

This study has several policy implications. First, programmes and policies should be crafted to ensure that in attempting to solve one problem, they do not exacerbate another. In an effort to increase access for certain racial minority groups, for instance, one affirmative action programme discussed in this review inadvertently decreased female participation in higher education.

One way to combat unintended effects is to coordinate policy actions. When implementing various cost-sharing schemes, for instance, programmes to provide scholarships or other subsidies to students on the basis of needs can help ensure access for disadvantaged groups while still shifting some portion of the costs of higher education from the government to the student.

Second, in formulating various programmes to promote access to higher education, careful consideration needs to be given to their distributive effects. Traditionally, students from wealthier families tend to study at universities at higher rates. Care thus needs to be taken to ensure that policies intended to increase access to higher education (such as free tuition policies) do not disproportionately benefit higher-income families and, in turn, exacerbate income inequality.

Finally, the review demonstrates that it is important to consider the unique historical, political and economic landscape of each country when setting policies to increase access to or the quality of higher education. For example, ODL programmes may not work well in countries where many students lack internet access or even a computer. In other countries this method of provision may fail to work because of strong cultural preferences for traditional education or the perception that online education is lower quality. What works in one country may not work in another due to differences in infrastructure, historical development and cultural attitudes.

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For a list of included studies, please see Appendix 2.4.

For a list of excluded studies, please see Appendix 2.5.

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Appendices

Appendix 1.1: Authorship of this report

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Appendix 1.2: List of developing countries included

For the purposes of our study, we used the IMF classification for developing countries (IMF 2010). To ensure the relevancy of the review to AusAID and its mission to alleviate poverty, we excluded evidence from countries classified as high-income by the World Bank (World Bank 2012).

Six countries which were not classified as emerging and developing nations by the IMF but which fell under AusAID's sphere of influence were added to the review. These countries are indicated by asterisks.

Afghanistan
Albania
Algeria
Angola
Antigua and Barbuda
Argentina
Armenia
Azerbaijan
Bangladesh
Belarus
Belize
Benin
Bhutan
Bolivia
Bosnia and Herzegovina
Botswana
Brazil Bulgaria
Burkina Faso
Burundi
Cambodia
Cameroon
Cape Verde
Central African Republic
Chad
Chile
China
Colombia
Comoros
Cook Islands*
Costa Rica
Côte d'Ivoire
Cuba
Djibouti
Dominica
Dominican Republic
Democratic Republic of Congo
East Timor
Ecuador
Egypt
El Salvador
Eritrea
Estonia
Ethiopia
Fiji
Gabon
Gambia
Georgia
Ghana
Grenada
Guatemala
Guinea
Guinea-Bissau
Guyana
Haiti
Honduras India
Indonesia
Iran
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Kosovo
Kyrgyzstan
Lao People's Democratic Republic
Latvia
Lebanon
Lesotho
Liberia
Libya
Lithuania
Macedonia
Madagascar
Malawi
Malaysia
Maldives
Mali
Marshall Islands
Mauritania Mauritius
Mexico
Micronesia
Moldova
Mongolia
Montenegro
Morocco
Mozambique
Myanmar
Namibia
Nepal
Nauru*
Nicaragua
Niger
Nigeria
Niue*
Pakistan
Palau
Panama
Papua New Guinea*
Paraguay
Peru
Philippines
Poland
Puerto Rico
Romania
Russia
Rwanda
Saint Kitts and Nevis
Saint Lucia
Samoa
São Tomé and Príncipe
Senegal
Serbia
Seychelles
Sierra Leone
Solomon Islands
Somalia
South Africa
Sri Lanka
St Vincent and the Grenadines
Sudan
Swaziland
Syria
Tajikistan
Tanzania
Thailand
Togo
Tokelau*
Tonga
Tunisia
Turkey
Turkmenistan
Tuvalu*
Uganda
Ukraine
Uruguay
Uzbekistan
Vanuatu
Venezuela
Vietnam
Yemen
Zambia
Zimbabwe

Appendix 2.1: Policies and methods of provision included in the review

The review includes studies focusing on any higher education policy designed to broaden access, ensure quality and promote gender equity. These policies include:

Access

- Stipends
- Scholarships
- Student loans
- Opening institutions or outreach offices in deprived areas

Quality

- Capacity building and consortia
- Curriculum development
- Peer tutoring and mentoring programmes

Gender issues

- Outreach and support offices for female students
- Programmes to prevent gender violence

Access and quality

- Expanding two-year, certificate, and vocational programmes
- Modular and flexible courses
- Internship programmes

Access and gender issues

- Gender-based scholarships
- Policies to reintegrate females post-pregnancy

Access, quality and gender issues

- Affirmative action
- All-female classes and institutions

The review also includes studies focusing on the impact of specific *methods of higher education provision* set in or involving students from developing countries. A non-exhaustive list with example providers is:

Public institutions and systems, including:

- Degree-granting institutions (University of Dar es Salaam, Tanzania)
- Vocational programmes (Nakawa Vocational Training Institute, Uganda)
- Two-year degree and certificate-granting programmes

Private and blended models, including:

- Private non-profit institutions (Instituto Tecnologico Autonomo de Mexico),
- Private for-profit institutions (University AMA Computer University, Anhembi Morumbi University, Brazil)
- Public–private partnerships (Tribhuvan University, Nepal)

Cross-border models, including:

- Attending institutions in other countries
- Consortia, networks and partnerships (Universitas 21; World University Network)
- Branch campuses of international institutions (New York University, Accra, Ghana; Texas A&M University, Qatar)
- Virtual or distance-based learning campuses (Indira Gandhi National Open University, India)

Appendix 2.2: Detailed search strategy

A researcher and librarian worked closely to develop a list of databases and search strategies to create the bibliography of citations for systematic review. Three tiers (groups) of keywords were developed by the researcher and were used extensively for searching different categories of sources:

1. Library subscription databases like Academic Search Elite, JSTOR, etc. (see Table A2.1).
2. Regional databases like AJOL, SLJOL, etc. (see Table A2.2).
3. Grey literature from sources like the Asian Development Bank, World Bank, etc. (see Table A2.3).

Due to the broad range of relevant topics, limiting the searches to filtering by subject heading or limiting occurrence of the keywords to the title or abstract field ensured a more prominent discussion of the combined tier topics. Even then, intensive review of citations was required for the bibliography.

Two databases required a more basic search strategy. Article First allowed the use of just one of the tiers and JSTOR searches were limited to database defined topic areas (Development Studies and Public Policy and Administration). Neither database yielded a cumbersome number of results despite the less limited filtered searches.

Two types of traditional searches were conducted: full and modified. The procedure outlined in the protocol for full searches was followed in library subscription databases and the results are described below. These searches yielded 16,192 results.

Modified searches were conducted for the regional and non-subscription databases. A modified search approach was required for searching through three of five databases of AfricaBib. While LAMJOL, VJOL and Latindex are in languages other than English and required translating the page in order to effectively search through these databases. The results of these modified searches are described below. They yielded 22,795 results.

Lastly, a grey literature search was conducted. Two modified searches were made. For those websites that provided for a search box, a keyword search strategy was applied. For those that provided for predefined lists of keywords/categories and titles, relevant keywords/categories and articles were selected. Grey literature search results totalled 21,133.

Traditional searches

Full searches

The search terms/keywords were grouped into three levels. The following terms were used for the searches:

Level 1

"Higher Education" OR "Graduate Study" OR "Postdoctoral Education" OR "Undergraduate Study" OR "Academic Degrees" OR "College Admission" OR "College Attendance" OR "College Instruction" OR "College Programs" OR "Colleges" OR "Developing Institutions" OR "Doctoral Programs" OR "Graduate Students" OR"Masters Programs" OR "Undergraduate Students" OR "Universities" OR "Advanced Education" OR "Private Higher Education" OR "Public Higher Education" OR "Tertiary Education" OR "Two-year Colleges" OR "Community Colleges" OR "Technical Institutes" OR "Associate Degrees" OR "Vocational Education" OR "Adult Vocational Education" OR "Business Education" OR "Cooperative Education" OR "Distributive Education" OR "Prevocational Education" OR "Technical Education" OR "Trade and Industrial Education" OR "TVET" OR "technical and vocational education training" OR "Work place learning" OR "Certificate program"

Level 2

"Access to Computers" OR "Achievement Gap" OR "Admission" OR "Admission Criteria" OR "At Risk Students" OR "Attendance" OR "Barriers" OR "College Admission" OR "College Attendance" OR "Education" OR "Educational Demand" OR "Educational Discrimination" OR "Educational Finance" OR "Educational Supply" OR "Enrollment" OR "Experienced Teachers" OR "External Degree Programs" OR "Geographic Location" OR "Inclusion" OR "Intellectual Freedom" OR "Noncampus Colleges" OR "Open Enrollment" OR "Open Universities" OR "Prior Learning" OR "School Location" OR "Social Justice" OR "Student Costs" OR "Student Financial Aid" OR "Virtual Classrooms" OR "Educational Access" OR "UDL" OR "Universal Design for Learning" OR "Academic Achievement" OR "Academic Failure" OR "Access to Education" OR "Achievement Gains" OR "Achievement Gap" OR "Affirmative Action" OR "At Risk Students" OR "Educational Assessment" OR "Educational Attainment" OR "Educational Equity" OR "Educational Indicators" OR "Educational Status Comparison" OR "Educationally Disadvantaged" OR "Equal Education" OR "Grade Repetition" OR "Learning Problems" OR "Low Achievement" OR "Outcomes of Education" OR "School Readiness" OR "Student Educational Objectives" OR "Underachievement" OR "Advanced Placement Programs" OR "Alignment" OR "College School Cooperation" OR "College Transfer Students" OR "Curriculum Development" OR "Developmental Continuity" OR "Education" OR "Educational Mobility" OR "Educational Planning" OR "Institutional Cooperation" OR "Intercollegiate Cooperation" OR "Program Content" OR "Tech Prep" OR "Transfer Policy" OR "Transfer Programs" OR "Transfer Rates" OR "Unified Studies Curriculum" OR "Upper Division Colleges" OR "College Attendance" OR "Persistence" OR "Access to Education" OR "Attendance Patterns" OR "Dropouts"

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students?

OR “Enrollment” OR “Expulsion” OR “Leaves of Absence” OR “Participation” OR “Reentry Students” OR “School Attendance Legislation” OR “Transfer Policy” OR “Transfer Students” OR “Truancy” OR “Withdrawal” OR “Asynchronous Communication” OR “Blended Learning” OR “Blended Instruction” OR “Computer Mediated Communication” OR “Correspondence Schools” OR “Educational Television” OR “Electronic Learning” OR “Extension Education” OR “External Degree Programs” OR “Geographic Isolation” OR “Handheld Devices” OR “Independent Study” OR “Mass Instruction” OR “Nontraditional Education” OR “Online Courses” OR “Open Universities” OR “Outreach Programs” OR “Part Time Students” OR “Synchronous Communication” OR “Telecommunications” OR “Telecourses” OR “Videoconferencing” OR “Virtual Classrooms” OR “Virtual Universities” OR “Web Based Instruction” OR “Board of Education Policy” OR “Commercialization” OR “Education” OR “Educational Administration” OR “Educational Assessment” OR “Politics of Education” OR “School District Autonomy” OR “School Policy” OR “School Restructuring” OR “Self Determination” OR “Stakeholders” OR “Exchange Programs Enrichment Activities” OR “Institutional Cooperation” OR “Intercultural Programs” OR “International Cooperation” OR “International Educational Exchange” OR “Gender Differences” OR “Gender Equity” OR “Gender Inequity” OR “Gender Violence” OR “Gender-based Abuse” OR “Gender-based Discrimination” OR “Gender-Based Violence” OR “Post-Pregnancy” OR “Sexual Discrimination” OR “Violence Against Women” OR “Developing Institutions” OR “Educational Legislation” OR “Federal Aid” OR “Federal Government” OR “Federal Regulation” OR “Federal State Relationship” OR “Full State Funding” OR “Governance” OR “Government” OR “Government Role” OR “Institutional Autonomy” OR “Local Government” OR “National Competency Tests” OR “National Curriculum” OR “Partnerships in Education” OR “Politics of Education” OR “Private School Aid” OR “Privatization” OR “Public Policy” OR “Public Service” OR “School Administration” OR “School Attitudes” OR “School District Autonomy” OR “School Involvement” OR “School Role” OR “Schools” OR “State Aid” OR “State Government” OR “State Regulation” OR “Student Records” OR “Tribally Controlled Education” OR “Adult Education” OR “Coeducation” OR “Continuing Education” OR “Females” OR “Gender Issues” OR “Postsecondary Education” OR “Professional Continuing Education” OR “Single Sex Classes” OR “Single Sex Colleges” OR “Single Sex Schools” OR “Sororities” OR “Women’s Athletics” OR “Women’s Studies” OR “Cooperative Learning” OR “Cross Age Teaching” OR “Peer Influence” OR “Peer Relationship” OR “Reciprocal Teaching” OR “Tutorial Programs” OR “Tutoring” OR “Peer tutoring” OR “Private Colleges” OR “Public Education” OR “Church Related Colleges” OR “Private Education” OR “Private Financial Support” OR “Public Colleges” OR “Single Sex Colleges” OR “Small Colleges” OR “Independent Colleges” OR “Private Junior Colleges” OR “Private Universities” OR “Corporations” OR “Cross-border” OR “Cross-sector” OR “Branch Campuses” OR “For-profit” OR “Foreign providers” OR “Franchise” OR “Joint Ventures” OR “Satellite Institution” OR “Consortia” OR “Mixed Status” OR “Multi-Campus Colleges” OR “Non-campus College” OR “Study Abroad” OR “transnational education” OR “Twinning” OR “Group Assembled” OR “Hybrid Learning” OR “Individual Learner Assembled” OR “International Education” OR “Internship Programs” OR “Internships” OR “Mentoring” OR “Mentorship” OR

“Outreach” OR “Out-Source” OR “Partnership” OR “Part-Time” OR “Subcontract” OR “Company Designed” OR “Consultancy” OR “Brokerage” OR “Flexible Courses” OR “Curriculum Development” OR “Modular Courses” OR “Modular Syllabus” OR “Administrative Policy” OR “Capacity Building” OR “Discipline Policy” OR “Educational Policy” OR “Educational Quality” OR “Financial Policy” OR “Foreign Policy” OR “Governing Boards” OR “Information Policy” OR “Personnel Policy” OR “Public Policy” OR “School Policy” OR “Transfer Policy” OR “Policy Analysis” OR “Policy Formation” OR “Standards” OR “Fellowship” OR “Financing” OR “Full-Fee-Paying Students” OR “Government Scholarships and Grants” OR “Government Subsidies” OR “Loans” OR “Private Financial Support” OR “Stipends” OR “Student Costs” OR “Student Financial Aid” OR “Local Collaboration” OR “Regional Collaboration” OR “Transnational Collaboration”

Level 3 (LMIC [low- and middle-income countries] **filters)**

"developing country" OR "developing countries" OR "developing nation" OR "developing nations" OR "developing population" OR "developing populations" OR "developing world" OR "less developed country" OR "less developed countries" OR "less developed nation" OR "less developed nations" OR "less developed population" OR "less developed populations" OR "less developed world" OR "lesser developed country" OR "lesser developed countries" OR "lesser developed nation" OR "lesser developed nations" OR "lesser developed population" OR "lesser developed populations" OR "lesser developed world" OR "under developed country" OR "under developed countries" OR "under developed nation" OR "under developed nations" OR "under developed population" OR "under developed populations" OR "under developed world" OR "underdeveloped country" OR "underdeveloped countries" OR "underdeveloped nation" OR "underdeveloped nations" OR "underdeveloped population" OR "underdeveloped populations" OR "underdeveloped world" OR "middle income country" OR "middle income countries" OR "middle income nation" OR "middle income nations" OR "middle income population" OR "middle income populations" OR "low income country" OR "low income countries" OR "low income nation" OR "low income nations" OR "low income population" OR "low income populations" OR "lower income country" OR "lower income countries" OR "lower income nation" OR "lower income nations" OR "lower income population" OR "lower income populations" OR "underserved country" OR "underserved countries" OR "underserved nation" OR "underserved nations" OR "underserved population" OR "underserved populations" OR "underserved world" OR "under served country" OR "under served countries" OR "under served nation" OR "under served nations" OR "under served population" OR "under served populations" OR "under served world" OR "deprived country" OR "deprived countries" OR "deprived nation" OR "deprived nations" OR "deprived population" OR "deprived populations" OR "deprived world" OR "poor country" OR "poor countries" OR "poor nation" OR "poor nations" OR "poor population" OR "poor populations" OR "poor world" OR "poorer country" OR "poorer countries" OR "poorer nation" OR "poorer nations" OR "poorer population" OR "poorer populations" OR "poorer world" OR "developing economy" OR "developing economies" OR "less developed economy" OR "less developed economies" OR "lesser developed economy" OR "lesser developed economies" OR "under developed economy" OR "under developed economies" OR "underdeveloped economy" OR

How effective are different approaches to higher education provision in increasing access, quality and completion for students in developing countries? Does this differ by gender of students?

"underdeveloped economies" OR "middle income economy" OR "middle income economies" OR "low income economy" OR "low income economies" OR "lower income economy" OR "lower income economies" OR "low gdp" OR "low gnp" OR "low gross domestic" OR "low gross national" OR "lower gdp" OR "lower gnp" OR "lower gross domestic" OR "lower gross national" OR lmic OR lmics OR "third world" OR "lami country" OR "lami countries" OR "transitional country" OR "transitional countries" OR Africa OR Asia OR Caribbean OR West Indies OR South America OR Latin America OR Central America OR Afghanistan OR Albania OR Algeria OR Angola OR Antigua OR Barbuda OR Argentina OR Armenia OR Armenian OR Aruba OR Azerbaijan OR Bangladesh OR Benin OR Byelarus OR Byelorussian OR Belarus OR Belorussian OR Belorussia OR Belize OR Bhutan OR Bolivia OR Bosnia OR Herzegovina OR Hercegovina OR Botswana OR Brazil OR Bulgaria OR Burkina Faso OR Burkina Fasso OR Upper Volta OR Burundi OR Urundi OR Cambodia OR Khmer Republic OR Kampuchea OR Cameroon OR Cameroons OR Cameron OR Camerons OR Cape Verde OR Central African Republic OR Chad OR Chile OR China OR Colombia OR Comoros OR Comoro Islands OR Comores OR Mayotte OR Congo OR Zaire OR Cook Islands OR Costa Rica OR Cote d'Ivoire OR Ivory Coast OR Cuba OR Cyprus OR Czechoslovakia OR Czech Republic OR Slovakia OR Slovak Republic OR Djibouti OR French Somaliland OR Dominica OR Dominican Republic OR East Timor OR East Timur OR Timor Leste OR Ecuador OR Egypt OR United Arab Republic OR El Salvador OR Eritrea OR Estonia OR Ethiopia OR Fiji OR Gabon OR Gabonese Republic OR Gambia OR Gaza OR Georgia Republic OR Georgian Republic OR Ghana OR Gold Coast OR Grenada OR Guatemala OR Guinea OR Guam OR Guiana OR Guyana OR Haiti OR Honduras OR India OR Maldives OR Nauru OR Niue OR Indonesia OR Iran OR Iraq OR Isle of Man OR Jamaica OR Jordan OR Kazakhstan OR Kazakh OR Kenya OR Kiribati OR Korea OR Kosovo OR Kyrgyzstan OR Kirghizia OR Kyrgyz Republic OR Kirghiz OR Kirgizstan OR "Lao PDR" OR Laos OR Latvia OR Lebanon OR Lesotho OR Basutoland OR Liberia OR Libya OR Lithuania OR Macedonia OR Madagascar OR Malagasy Republic OR Malaysia OR Malaya OR Malay OR Sabah OR Sarawak OR Malawi OR Nyasaland OR Mali OR Malta OR Marshall Islands OR Mauritania OR Mauritius OR Agalega Islands OR Mexico OR Micronesia OR Middle East OR Moldova OR Moldovia OR Moldovian OR Mongolia OR Montenegro OR Morocco OR Ifni OR Mozambique OR Myanmar OR Myanma OR Burma OR Namibia OR Nepal OR Netherlands Antilles OR New Caledonia OR Nicaragua OR Niger OR Nigeria OR Northern Mariana Islands OR Muscat OR Pakistan OR Palau OR Palestine OR Panama OR Papua New Guinea OR Paraguay OR Peru OR Philippines OR Philipines OR Phillipines OR Phillippines OR Puerto Rico OR Romania OR Rumania OR Roumania OR Russia OR Russian OR Rwanda OR Ruanda OR Saint Kitts OR St Kitts OR Nevis OR Saint Lucia OR St Lucia OR Saint Vincent OR St Vincent OR Grenadines OR Samoa OR Samoan Islands OR Navigator Island OR Navigator Islands OR Sao Tome OR Senegal OR Serbia OR Montenegro OR Seychelles OR Sierra Leone OR Slovenia OR Sri Lanka OR Ceylon OR Solomon Islands OR Somalia OR Sudan OR Suriname OR Surinam OR Swaziland OR Syria OR Tajikistan OR Tadzhikistan OR Tadjikistan OR Tadzhik OR Tanzania OR Thailand OR Togo OR Togolese Republic OR Tokelau OR Tonga OR Tunisia OR Turkey OR Turkmenistan OR Turkmen OR Tuvalu OR Uganda OR Ukraine OR Uruguay OR USSR OR Soviet Union OR Union of Soviet Socialist Republics OR Uzbekistan OR Uzbek OR Vanuatu OR New Hebrides OR Venezuela OR Vietnam OR

Viet Nam OR West Bank OR Yemen OR Yugoslavia OR Zambia OR Zimbabwe OR Rhodesia

The search process was conducted in the following subscription databases that handle full searches:

- Academic Search Elite
- Article First
- Dissertation and Theses
- EconLit
- Education Abstracts
- ERIC (Education Resources Information Center)
- IDEAS search engine
- International Initiative for Impact Evaluation
- JSTOR
- PsycINFO
- Sociological Abstracts
- Web of Science

Table A2.1: Library subscription databases

Database	Search strategy	Results
Academic Search Elite	T1/subject headings (DE)+ T2/ti,ab + T3/ti,ab + 1990 -2012+English	2,335
Article First	T1/keyword + 1990-2012	90
Dissertation and Theses	T1/keyword +T2/keyword + T3/keyword + 1990-2012 + English	549
EconLit	T1/ti,ab + T2/ti,ab + T3/ti,ab + T4 +1990-2012 + English	346
Education Abstracts	T1/subject headings(DE) + T2/ti,ab + T3/ti,ab + 1990 -2012+English	490
ERIC	T1/ti,ab + T2/ti,ab + T3/ti,ab +1990-2012 + English	7,788
JSTOR	T1/title + English + 1990-2012 + (topic areas: Development Studies and Public Policy and Administration)	100
PsycINFO	T1/subject headings(DE) + T2/ti,ab + T3/ti,ab + 1990 -2012+English	184
Sociological Abstracts	T1/descriptors + T2/ti,ab + T3 ti,ab +1990-2013 + English	2,164
Web of Science	T1/topic + T2/topic + T3/topic +1990-2012 + English + subject area/Education Educational Research	2,146
		16,192

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Modified searches

In order to ensure that results captured as many studies on the topic, the following regional databases were also searched.

- AJOL (African Journals Online)
- BanglaJOL (Bangladesh Journals Online)
- LAMJOL (Latin American Journals Online)
- MongoliaJOL (Mongolia Journals Online)
- NepJOL (Nepal Journals Online)
- PhilJOL (Philippine Journals Online)
- SLJOL (Sri Lanka Journals Online)
- VJOL (Vietnam Journals Online)
- AfricaBib
- ASA (African Studies Online Abstracts)
- Catalogue of the African Studies, Lieden
- Scielo (Scientific Electronic Library Online)
- Latindex
- PRISMA (Publicaciones y Revistas Sociales y Humanísticas)

A more general search using a lesser number of keywords was conducted with regional databases. Search in ASA, AfricaBib and Catalogue of the African Studies in Lieden was further limited to 1990–2012. The following keywords were used to aid the keyword search strategy:

- College
- Colleges
- Graduate students
- University
- Universities
- Higher education
- Tertiary education
- Vocational education
- Undergraduate students
- Technical education
- Workplace learning

The following databases allowed for keyword search strategies (see Table A2.2 for the number of results by database):

- **AJOL** – Results yielded were dated 2002–12.
- **BanglaJOL** – Results yielded were dated 2002–12.
- **LAMJOL** – Results yielded were dated 2002–12. LAMJOL's website is in Spanish, 'Google Chrome translate' was used to access the page's content in English.
- **MongoliaJOL** – Only 'university' search term yielded results dated 2002–12

- **NepJOL** – Results yielded were dated 1991–2012.
- **PhilJOL** – Results yielded were dated 2002–12.
- **SLJOL** – Results yielded were dated 1997–2012.
- **VJOL** – Results yielded were dated 2003–12. VJOL's website is in Vietnamese, 'Google Chrome translate' was used to access the page's content in English.
- **AfricaBib** – There are five bibliographic databases: Africana Periodical Literature; African Women; Women Travelers, Explorers and Missionaries to Africa; Islam in Contemporary Sub-Saharan Africa; and Kenya Coast. For this study, only Africana Periodical Literature; African Women; and Kenya Coast were searched and consulted. In the African Women database, the search for the 'university' search term was further limited to periodical articles only.
- **ASA** – Results yielded were dated 1990–2012. 'University' search term was further limited to English articles only.
- **Catalogue of the African Studies, Lieden** – Results yielded were dated 1990–2012. 'University' search term was further limited to English articles only.
- **Scielo** – Search was limited to Integrated & Regional. Only college, university, universities, higher education yielded results dated 1990–2012.
- **Latindex** – Results yielded were dated 1990–2012. Latindex's website is in Spanish, 'Google Chrome translate' was used to access the page's content in English.
- For **PRISMA**, 'Title Lists' was provided, but the list just enumerates journal titles which are in Spanish.

Table A2.2: Regional and non-subscription databases

Database	Search strategy	Results
AJOL	T1/all categories for + All Journals	1,843
BanglaJOL	T1/all categories for + All Journals	1,193
LAMJOL	T1/en todas las categorías + Todas las revistas	79
MongoliaJOL	T1/all categories + All Journals	20
NepJOL	T1/all categories + All Journals	1,303
PhilJOL	T1/all categories + All Journals	916
SLJOL	T1/all categories + All Journals	1075
VJOL	T1/ Tìm tất cả các mục + Tat cá các tap chí	490
Catalogue of the African Studies in Lieden	T1 except university/search [and] words from [the] abstract	6,704
	university/search [and] words from [the] abstract + Articles + English Only	
AfricaBib – Africana Periodical Literature	T1/whole record + 1990–2012	2,141

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Database	Search strategy	Results
Bibliographic Database		
AfricaBib – African Women	T1 except university/whole record + 1990–2012 University/whole record + 1990–2012 + periodical articles only	701
AfricaBib – Kenya Coast	T1/whole record + 1990–2012 + All Disciplines	74
ASA	T1 except university/search [and] words from [the] abstract	4,371
	university/search [and] words from [the] abstract + Articles + English Only	
PRISMA	Title Lists is provided by PRISMA website	0
Scielo	T1/entry one or more words + integrated + regional	232
Latindex	T1/Nombre de la revista + directorio	7
IDEAS search engine	T1/all categories + 1990–2012 from abstract/title	487
International Initiative for Impact Evaluation	T1/all categories	117
OECD library	T1/all categories + pre-1997–2012 + Papers + English Only	1,159
		22,795

Grey literature

Two types of modified searches were employed to facilitate the grey literature search. First, a 'keyword search strategy' (which is a more general search using a lesser number of keywords) was conducted in the Publications' page of various websites. The following search terms were used:

- College
- Colleges
- Graduate students
- University
- Universities
- Higher education
- Tertiary education
- Vocational education
- Undergraduate students
- Technical education
- Workplace learning

The second type of modified search employed involved looking over predefined lists of keywords/categories and titles provided by different websites. The researcher went over the lists and relevant keywords/categories, articles/titles were selected.

For the detailed number of results, see Table A2.3. The following websites were consulted for grey literature:

- Inter-American Development Bank
- Asian Development Bank
- World Bank (World Bank E-Library)
- African Development Bank
- Center for Global Development
- Institute of Development Studies
- UNESDOC/UNESCO
- Association for the Development of Education in Africa (ADEAnet)
- European Union – Asia Higher Education Platform
- British Council
- Canada – International Development Research Centre (IDRC)
- China Aid
- Danish International Development Agency (Danida)
- European Union – EuropeAid Development and Cooperation
- Finland – Department for International Development Cooperation (FINIDA)
- Consortium for Research on Educational Access, Transitions and Equity (CREATE)
- Global Development Network (GDNet)
- Governance and Social Development Resource Centre (GSDRC)
- ELDIS
- AusAID
- Austrian Development Agency – ADA
- Agência Brasileira de Cooperação
- Canadian International Development Agency (CIDA)
- France – Department for International Cooperation and French Development Agency (AfD)
- Federal Ministry for Economic Cooperation and Development, German Development Bank (KfW)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Irish Aid
- Israel – Agency for International Development Cooperation (MASHAV)
- Official Development Assistance, Japan International Cooperation Agency (JICA)
- Japan Bank for International Cooperation (JBIC)
- Korea International Cooperation Agency
- New Zealand Agency for International Development (NZAid)
- Netherlands – Ministry of Development Cooperation

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- International Development Program and Norwegian Agency for Development Cooperation (NORAD)
- International Cooperation and Development Fund (ICDF)
- Swedish International Development Cooperation Agency (SIDA)
- Swiss Agency for Development and Cooperation(SDC)
- UK – Department for International Development (DFID)
- Ministry of Foreign Affairs, Foreign Trade and Development: Belgian Policy Plan for Development Cooperation, Belgian Technical Cooperation – BTCCTB
- Italy – Ministry of Foreign Affairs: Italian Development Cooperation Programme
- Luxembourg – Lux-Development
- Poland – Ministry of Foreign Affairs: The Development Co-operation Department
- Portugal – Instituto Português de Apoio ao Desenvolvimento
- Slovak Aid
- Spanish Agency for International Cooperation (AECID)
- Turkish International Cooperation and Development Agency (TİKA)
- United States Agency for International Development (USAID)
- Inter-American Foundation (IAF)
- Millennium Challenge Corporation (MCC)
- African Development Foundation (ADF)

However, the following websites yielded no results:

- BTCCTB
- Italy – Ministry of Foreign Affairs: Italian Development Cooperation Programme
- Luxembourg – Lux-Development
- Poland – Ministry of Foreign Affairs: The Development Co-operation Department
- Portugal – Instituto Português de Apoio ao Desenvolvimento
- Slovak Aid
- AECID
- TİKA
- USAID
- IAF
- MCC
- ADF

The first strategy, the 'keyword search strategy' was employed for the following websites:

- **Inter-American Development Bank** – Results yielded were dated 1995–2012.
- **Asian Development Bank** – Results yielded were dated 1992–2012.
- **World Bank** – Results yielded were dated 2000–12. 'Higher education, tertiary education, vocational & technical education, workplace learning' search terms were further limited to journals only.
- **Institute of Development Studies** – Results yielded were dated 1990–2012.
- **UNESCO/UNESDOC** – Results yielded were dated 1990–2012. Search was further limited to Any Type and English
- **China Aid** – Results yielded were dated 2000–12.
- **Danida** – Results yielded were dated 1990–2012. Search was further limited to um.dk.
- **European Union – EuropeAid Development and Cooperation** – Results yielded were dated 2000–12.
- **FINIDA** – Results yielded were dated 2000–12.
- **GDNET** – Results yielded were dated 2000–12. Search was further limited to Knowledge Base.
- **GSDRC** – Results yielded were dated 1990–12.
- **ELDIS** – Results yielded were dated 1990–12.
- **ADA** – Results yielded were dated 2009–12. Search was limited to All Media, All languages, Level 1: Countries and Regions.
- **KfW** – Results yielded were dated 2000–12.
- **GIZ** – Results yielded were dated 2000–12.
- **JICA** – Results yielded were dated 2000–12.
- **JBIC** – Results yielded were dated 2000–12.
- **NZAid** – Results yielded were dated 2011–12.
- **Netherlands – Ministry of Development Cooperation** – Results yielded were dated 2000–12.
- **International Development Program and NORAD** – Results yielded were dated 1991–2012.
- **SIDA** – Results yielded were dated 1991–2012.
- **SDC** – Results yielded were dated 2002–12
- **DFID** – Only college and university search terms yielded results which are dated 2004.

The second strategy of going over predefined list of keywords/categories and articles/titles was employed for the following websites:

- **African Development Bank** – a predefined list of keywords. In this search, All Countries: Education was selected.
  Center for Global Development – a predefined list of keywords. In this search, Education was selected.
- **ADEAnet** – Catalogue of publications was provided by ADEANET.

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- **European Union-Asia Higher Education Platform –** 21 titles from the publications' section were looked into.
  British Council – provided a list of articles/titles where bibliographies were available. In this search, Access English Publication was consulted.
- **IDRC** – The following predefined categories were consulted: IDRC Books, Articles, Other Books, IDRC Bulletin. Results were dated 1990–2012.
- **CREATE –** The following predefined categories were consulted: Research Monographs: Pathways to Access Series (PTAs), Policy Briefs, Country Analytic Reviews (CARs), Publications – Journal Articles, Publications – Other Publications, Working Papers & Research Reports. Titles were dated 2005–12.
- **AusAID –** Predefined categories were provided. For this search, Policy Documents which gave titles dated 1990–2012 was consulted.
- **Agência Brasileira de Cooperação –** Predefined categories were provided. For this search, ABC Publications which gave titles dated 2000–12 were consulted.
- **CIDA** – Predefined categories were provided. The following were consulted: Key Resources, Policy Suites, Reports, Archives. Results yielded were dated 2000–12.
- **AfD –** Predefined keywords were provided. Theme: Education/Professional Training; Sector: Education were selected for this search. Results were dated 2012.
  Irish Aid – A list of publications was provided. Results were dated 2000–12.
- **MASHAV –** Predefined categories were provided. For this search, Courses and Publications: General Publications was selected. Results were dated 2012.
- **Korea International Cooperation Agency –** Predefined categories were provided. For this search, Research was selected. Results were dated 2000 – 2012.
- **ICDF –** Predefined categories were provided. For this search, the following publications were consulted: Publications: Books, Annual Report, Thematic Issues, IC&D, Others. Results were dated 2000 – 2012.

Table A2.3: Grey literature

Grey sources	Search strategy	Results
ADEAnet	Catalogue of publications provided by Adeanet website	
African Development Bank	Documents: All Countries, Education	3
Asian Development Bank	T1/publications	215
Australia – AusAID	Publications: Policy Documents	37
Austria – ADA	T1/Search for + All Media + All languages + Level 1: Countries and Regions	65
Brazil – Agência Brasileira de Cooperação	ABC Publications	12
British Council	Access English: Books, Symposiums	11

Grey sources	Search strategy	Results
Canada – CIDA	Publications: Key Resources, Policy Suites, Reports, Archives	53
Center for Global Development	Publications: Education	40
China Aid	T1/Publications, search	
CREATE	Publications: Research Monographs: Pathways to Access Series (PTAs), Policy Briefs, Country Analytic Reviews (CARs), Publications – Journal Articles, Publications – Other Publications, Working Papers & Research Reports	143
Denmark – Danida	T1/Publications, search + um.dk	2,342
France – AfD	Publications: Theme: Education/Professional Training ; Sector: Education	3
Germany – GIZ	T1/search	516
ELDIS	T1/Topics, search	2,474
European Union – Asia Higher Education Platform	Publications	21
European Union – EuropeAid Development and Cooperation	T1/Publications, search	149
Germany – KfW	T1/search	620
Finland – FINIDA	T1/Publications	134
GDNET	T1/Keyword Search + Knowledge Base	683
GSDRC	T1/Document Library, search	757
Institute of Development Studies	T1/all publications, keyword	3,594
Inter-American Development Bank	T1/all publications, keywords	498
ICDF	Publications: Books, Annual Report, Thematic Issues, IC&D, Others	46
Norway – NORAD	T1/search	378
Canada – IDRC	Publications: IDRC Books, Articles, Other Books, IDRC Bulletin	1,002
Ireland – Irish Aid	Publications	90
Japan – JBIC	T1/Publications, search	179
Korea International Cooperation Agency	Publications: Research	141
Israel – MASHAV	Courses and Publications: General Publications	9
Netherlands – Ministry of Development Cooperation	T1/Documents and publications, keyword + all documents and publications	258

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Grey sources	Search strategy	Results
New Zealand – NZAid	T1/search	64
Japan – JICA	T1/search	1,043
Sweden – SIDA	T1/Publications, search	840
Switzerland – SDC	T1/Publications, Search	24
UK – DFID	T1/Publications, Search Text + All Publication Types + All Themes + All Countries	3
UNESCO and UNESDOC	T1/Keywords + Any Type + English	1,020
World Bank	T1 except higher education, tertiary education, vocational & technical education, workplace learning /Open Knowledge Repository, All of the OKR higher education, tertiary education, vocational & technical education, workplace learning /Open Knowledge Repository, All of the OKR + journals only	3,666
		21,133

Appendix 2.3: Distiller screening tool

Stage 1 and 2: Abstract, title and full-text screening tool

1. Does the document present results from a primary study (as opposed to clearly being a literature review, essay, opinion piece, or theoretical article)?
    a. Yes
    b. No
2. (If 'no' is selected for question 1) Is the document a literature review, meta-analysis, conference proceedings, or some other compilation of articles?
    a. Yes
    b. No
    c. Unknown
3. Is the study set in a developing country? (refer to 'Instructions for article review' for a full list of developing countries included in this study)
    a. Yes
    b. No
    c. Unknown
4. Does the document examine the effects of a method of a higher education provision or policy to increase access to or the quality of higher education? (refer to the 'Instructions for article review' for a full list of provisions and policies)
    a. Yes
    b. No
    c. Unknown
5. Does this document include a quantitative assessment of access, quality or gender-specific issues (as opposed to containing purely qualitative data from obtained through methods such as case studies or qualitative interviews)?
    a. Yes
    b. No
    c. Unknown
6. Notes for internal reference (use only if needed): _____
    _____
    _____

Stage 3: Full-text coding

1. Basic information: Publication type (select an answer)
    a. Peer reviewed journal
    b. Book or book chapter
    c. Institutional publication
    d. Institutional working paper
    e. Conference paper

f. Other (specify)

_____
_

2. Basic information: Funding source (specify if provided)

_____

3. Basic information: Setting (extract country or countries where intervention took place, use country names consistently, i.e. USA, UAE, Nigeria)

_____
_

4. Basic information: Type of higher education provision or policy (select an answer)
    a. Affirmative action
    b. All-female classes and institutions
    c. Branch campus
    d. Capacity building and consortia
    e. Certificate-granting programme
    f. Consortia, network, or partnership
    g. Curriculum development
    h. Expanding two-year, certificate, and vocational programmes
    i. Gender-based scholarships/Internship programmes
    j. Modular and flexible courses
    k. Opening institutions or outreach offices in deprived areas
    l. Outreach and support offices for female students
    m. Peer tutoring and mentoring programmes
    n. Policies to reintegrate females post-pregnancy
    o. Programmes to prevent gender violence
    p. Public degree-granting institution
    q. Public–private partnership
    r. Private non-profit institution
    s. Private for-profit institution
    t. Scholarships
    u. Stipends
    v. Student loans
    w. Study abroad
    x. Tuition and/or cost-sharing policies
    y. Virtual or distance-based learning
    z. Vocational
    aa. Unclear
    bb. Other (please specify)

    _____

5. Basic information: Describe the form of education provision or policy in greater detail (features, target population, goals, etc.)

_____
_____
_

6. Data: Source (select all that apply)
    a. Primary (if primary data are used, record the following)

i. Population from which sample is drawn
_____
ii. Sample selection methods
_____
iii. Sample size
_____
iv. Variables collected _____
v. Data collection methods
_____
vi. Time period covered (e.g. 1990–2000)
_____
vii. Attrition (state number of students lost to attrition)
_____

b. Secondary (if secondary data are used, record the following)
i. Source _____
ii. Time period covered (e.g. 1990–2000)
_____
iii. Variables used
_____

7. Data: Type (select an answer) One cross-section; Multiple cross-sections; Panel; Time series observations; Other (please specify)
8. Data: Unit of observation (select an answer)
a. Country
b. State
c. Province, or similar entity within a country
d. Institution
e. Household
f. Individual
g. Other (please specify)
9. Data: Number of units (e.g. 73 institutions, 300 students) _____
10. Data: Student population
a. Gender
_____
b. Mean age
_____
c. Socio-economic status _____
d. Ethnicity
_____
e. Other _____
f. Unclear/No information
_____
11. Study design: Type of study (select an answer)
a. Experimental [randomised controlled trial/sufficiently powered regression discontinuity, lottery-based assignment]
b. Quasi-experimental [OLS, propensity score matching, hierarchical linear model (HLM), random effects, and other methods where the

identification requires selection to be only on the observable variables included in the model.]

c. Natural experiments [IV (and other names for it like simultaneous equations, etc.), difference-in-differences, fixed effects, or OLS/propensity score where selection conditions are KNOWN and the variables on which selection is made are included in the model.e.g. where the identification is robust to selection on UNOBSERVABLES]
d. Non-experimental with control group [simple means comparisons of treatment and control with no additional controls]
e. Non-experimental before-after [simple means comparison of treatment and control before and after a policy or programme is implemented with no additional controls]
f. Descriptive [simple quantitative description of a programme or policy with no attempt to determine effects.]
g. Other [please describe]

_____

12. Study design: Data analysis method (select an answer)
    a. Cross-country
    b. Non-panel analysis
    c. Panel analysis
    d. Cross-sectional regressions
    e. Cross-tabulation (may use chi-square) HLM or random effects
    f. Panel regressions
    g. Simple comparison of means (may use t-tests)
    h. Structural models (structural equation modelling, path analysis)
    i. Time series regressions
    j. Simple statistics (i.e. descriptive)
    k. Difference-in-differences or fixed effects
    l. Other (specify) _____
13. Study design: What did the researchers do to control/account for bias or study quality? (select all that apply)
    a. Sample stratification
    b. Covariates (controls)
    c. Statistical matching techniques (e.g. propensity score approach, pairing)
    d. Treatment of missing data
    e. Attrition (level of and explanation for)
    f. Pilot testing (of questionnaire or survey)
    g. N/A
    h. Other (please specify) _____
14. Outcomes: Relevant outcomes assessed
    a. Access
    b. Quality
    c. Enrolment
    d. Retention
    e. Graduation
    f. Student satisfaction

    g. Other (please specify) _____

15. Outcomes: Are the outcomes differentiated by gender? (select an answer)
    a. Yes
    b. No
16. Outcomes: Specify the quantitative outcomes (effect, confidence interval, significance, etc.), including differences by gender, when available

    _____
    _____
    _____
    ___

17. Outcomes: Specify the qualitative outcomes, including differences by gender when applicable

    _____
    _____
    _____
    ___

18. Study quality: Based on the information extracted, focusing particularly on the elements of the study design, classify the execution of the study into one of the following categories
    a. No reliance or confidence should be placed on the results of this evaluation because of the number and type of serious shortcomings in the methodology employed (EXCLUDE and stop here)
    b. Methodology rigorous in some respects, weak in others
    c. Methodology rigorous in almost all respects
19. Study quality: Is there any known or stated reason the method used in the study may not be relevant for the review question? (select an answer)
    a. Yes
    b. No
20. Study quality: Is there any known or stated reason the topic focus or context of the study may not be relevant to the review question? (select an answer)
    a. Yes
    b. No
21. Other comments

    _____
    _____
    _____

Appendix 2.4: List of included studies and quality appraisal

Tier 1

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