Global Higher Education Rankings 2010

Affordability and Accessibility in Comparative Perspective

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HIGHER EDUCATION STRATEGY ASSOCIATES

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Introduction

Access to higher education – that is, the ability of people from all backgrounds to access higher education on a reasonably equal basis – is an issue that confronts governments all over the world. In all countries, there are loud and vocal lobbies insisting that education remain (or become) "affordable" and "accessible" to all.

These are indeed important goals. Unfortunately, questions regarding affordability and accessibility are rarely posed in a systematic and rigorous way. What, for instance, constitutes an "affordable" education? At what point does an education become "unaffordable"? How can we know whether a system of education is "accessible"? Would anyone really be able to distinguish a system that is "accessible" from one that is "inaccessible"? And what is the link between the concepts of affordability and accessibility? Just how inextricable is the link between accessibility and affordability?

This report is not an attempt to answer any of these questions in any definitive sense. Such an undertaking remains, unfortunately, beyond the means of researchers at the moment due to a lack of common data. But it is an attempt to force policy-makers, stakeholders and academics around the world to confront these questions in a more systematic fashion, by putting international statistics on affordability and access in a consistent, comparative framework and shedding harsh light on national claims of policy success.

This is the second iteration of the Global Higher Education Rankings project. The first, written by Alex Usher and Amy Cervenan in early 2005, was an initial attempt to provide scholars, policy-makers and stakeholders with comparable cross-national data on a range of indicators of affordability and accessibility of higher education. Crucially, the report assigned different scores to countries' efforts in making education "accessible" and "affordable." This was done deliberately in order to permit an analysis of the relationship (or, as it turned out, the lack thereof) between affordability and accessibility.

The reaction to the first publication was both gratifying and instructive. Our decision to present the data on the 10 indicators as a set of rankings was something of a gamble. On the one hand, assigning ranks had the benefit of simplifying the communication of results, on the other hand, there was a concern that this approach might be seen as trivializing the data.

As it turned out, the approach was highly successful. Turning the data into rankings by and large was seen as a useful heuristic device to transmit the conclusions of a fairly nuanced set of comparisons; certainly, it was key to the wide dissemination and press coverage the document received. Also, the decision to split affordability and accessibility provoked wide interest, particularly when it became clear that the two concepts were less closely linked – at the level of the nation-state, at least - than was previously assumed. We were especially gratified by the widespread use that was made of the ranking in terms of public policy making in various countries, and by the use that was made of the approach by other agencies, including the World Bank (see *Affordability and Access in Latin America, page 52*).

Originally, our hope was that we would be able to present a more expansive study, including more countries – especially developing ones – in the ranking. We have, unfortunately, been bedevilled by ongoing problems of data comparability. In particular, our hopes of expanding this analysis to more middle-and low-income countries have

come to more or less nothing (with the exception of Mexico). Readers familiar with the 2005 report will note that a different array of countries appears in this report than in the last version, and that some countries may appear in the affordability half of the report but not the accessibility half, or vice versa. This is solely because of data availability issues. This edition is largely based upon data for the 2007-2008 academic year and in general can be considered a "2007-2008" ranking. However, data availability across national borders differs considerably and some data is by necessity from the 2006-07 or 2008-09 academic year.

We do not believe by any means that this report constitutes the last word in portraying accessibility or affordability in an international comparative perspective. We have constructed the weightings of these rankings in accordance with what we believe to be reasonable definitions of the terms "affordability" and "accessibility," but we recognize that others may have different views on this issue. This is why we have followed the terms of the International Rankings' Expert Group's Berlin Principles on data transparency and published the source data so that others may re-construct and weight the indicators according to their own taste.

Part I: Methodology

In order to examine and rank states in terms of the affordability and accessibility of their higher education systems, one must be in possession of the following:

- An acceptable range of indicators that are indicative of "affordability" and "accessibility";
- Weightings for each indicator to permit an overall assessment of "affordability" and "accessibility"; and
- Data to populate each indicator that is sufficiently comparable across jurisdictions to permit "fair" international comparisons.

The last element will be discussed extensively in the "Data Sources" appendix to this report; for now, in the methodology section, we will examine in particular the first two points, indicators and weightings.

Affordability Indicators and Weightings

Indicators

When making inter-jurisdictional comparisons regarding the financial "barriers" to education, one may choose to compare either "raw" costs (that is, the actual cost to the student, converted into a common currency), or the costs expressed as a percentage of some form of income (student income, family income, or some proxy thereof). The working assumption for this paper is that comparisons are more meaningful if cost data is expressed as a function of ability to pay ("ATP"). Put simply, expressing "affordability" solely in terms of costs appears nonsensical given inter-jurisdictional differences in income; the only meaningful way to approach the concept is to include both costs and resources.

Given the above assumption, there are four possible types of indicators that can be used to look at affordability:

Costs as a Fraction of Ability to Pay – These are relatively easy to measure. Tuition (including all mandatory fees), Education Costs (tuition plus books and materials), Living Expenses (room and board) and Total Costs (education costs plus living expenses) can all be expressed as a function of an ATP measure.

Support/ATP – Various forms of government support should be included in any calculation of affordability. One way of doing so is measuring Grants, Loans and Tax Expenditures per student; all of which can all be expressed as a fraction of ATP.

Support/Costs – Another way to achieve the same thing is to measure government support as a fraction of the costs students face (e.g. grants as a % of total costs)

Cost minus support/ATP – A final way of measuring affordability is to calculate various forms of "net" costs (i.e. costs minus subsidies) or "out-of-pocket" costs (costs minus all government assistance) as a fraction of ATP.

Table 1: Possible Affordability Indicators

Cost/ATP	Support/ATP	Support/Cost	Cost minus support/ATP
Tuition as a % of ATP	Grants per student as a % of ATP	Grants per student as a % of tuition	Net Tuition as a % of ATP (tuition minus grants/tax credits)
Education Costs as a % of ATP	Loans per student as a % of ATP	Grants per students as a % of education costs	Out-of-pocket Tuition as a % of ATP (tuition minus loans and grants/tax credits)
Living Expenses as a % of ATP	Tax credits per student as a % of ATP	Grants per student as a % of total costs	Net Education Costs as a % of ATP
Total Costs as a % of ATP		Loans per student as a % of tuition	Out-of-pocket Education costs as a % of ATP
		Loans per students as a % of education costs	Net total costs as a % of ATP
		Loans per student as a % of total costs	Out-of-Pocket total costs as a % of ATP
		Tax credits per student as a % of tuition	
		Tax credits per students as a % of education costs	
		Tax credits per student as a % of total costs	

Any of these measures are reasonable potential measures of affordability, and choosing between them is necessarily a normative exercise. We eliminated direct measures of support (i.e. the measures in the second and third columns of Table 1) as possible indicators of affordability, on the grounds that while it is important to capture such data, on their own these measures say little about the affordability of education. In any case, the most important aspects of the information these measures contain were fully contained in the "cost minus support" indicators (i.e. column four of Table 1)

In this paper we convert all costs in local currency terms into US dollars. To make the comparison as fair as possible, we use a measure of Purchasing Power Parity (PPP), rather than exchange rates, which are subject to significant swings. Our chosen method of calculating PPP is the *Economist's* "Big Mac Index," which derives PPP from variations in the price of a Big Mac in different countries.

After consulting much literature on accessibility and conferring with colleagues in different parts of the world, six indicators of affordability were settled upon:

1) **Education Costs as a % of ATP.** The basic unit of analysis for measuring "affordability" of higher education is the cost of education. This cost is not simply "tuition"; it also includes any additional mandatory ancillary fees and the cost of books and study materials.

2) **Total Costs as a % of ATP.** Educational costs, however, are not the only costs facing students; they also need to pay a number of other expenses related to day-to-day living (which for the purposes of this report covers only the estimated costs of rent and food). Thus, "total costs" (education costs plus living expenses) are at least as important a measure of affordability as education costs. These costs are somewhat problematic in that individuals may choose to reduce their living costs by continuing to live with their families during their period of studies. However, students may choose to live with their parents for a number of reasons – out of financial necessity, financial convenience (living at home frees up income for consumption), or for reasons rooted deeply in national culture. In writing this report we have made the normative decision to portray the costs of study for students living away from home, in the full knowledge that many students may, for a variety of reasons, make lifestyle choices that result in them facing much lower costs than those portrayed in this study.

3) **Net Costs as a % of ATP.** Offsetting total costs are grants. In terms of human capital theory (Becker 1964)m since grants reduce the cost of attendance, a dollar of grants should have the same effect on human capital investment decisions as a dollar in tuition reduction. It is standard practice in most North American discussions of affordability (among many others, see St. John 2002, Berkner and Chavez 1997, Swail 2004) to measure not simply the "sticker" cost of education, but the also the "real" cost after subsidies such as grants have been taken into account. This study will follow therefore this practice and report net costs as well. In Europe, where certain types of indirect support such as rent assistance or subsidized student housing is the norm, we have made our best effort to include these in the grant calculation as well.

4) **Net Cost After Tax Expenditure as a % of ATP.** Grants, however, are not the only form of non-repayable assistance given out by governments. Some governments – notably Germany and Canada - also provide assistance through the tax system or though family allowances. Although it is not common practice in the United States, it seemed to us reasonable that if net costs were to be taken into account, then net costs including tax expenditures would need to be taken into account as well – if for no other reason than that we would be excluding sources of government expenditures which in some countries run into the billions of dollars. Some might think that no distinction should be made between the two types of assistance since both forms of assistance are non-repayable; however, there is some scepticism in the student aid community that these instruments have the same effectiveness as grants. In addition, when describing available assistance to students, it is general practice in Europe to make a distinction between the two types of support (see Vossensteyn 2004). For both of these reasons, we have decided to keep calculations involving tax expenditures separate from calculations involving other types of non-repayable assistance.

5) **Out-of-Pocket Costs as a % of ATP.** Net costs are an important element of human capital theory because net costs affect investment decisions. However,

student loan programs – which are used in a majority of countries included in this study – are established on the premise that in addition to dilemmas relating to net cost, students are also affected by "liquidity constraints." That is to say, a student might not be bothered by the net cost of a program in terms of the cost-benefit ratio she will derive from it, but that does not mean she can necessarily amass the necessary funds to study and live. Loans do not offset the cost of an education, but they do alleviate short-term liquidity problems associated with obtaining an education. "Out-of-pocket" costs - sometimes called "Net Price 2" in certain American affordability studies - are equal to total average costs minus total average loans and grants per student.

6) **Out-of-pocket Costs After Tax Expenditures as a % of ATP**. As with net costs, out-of-pocket costs exclude an important source of assistance provided by governments; namely, tax expenditures. As with our fourth indicator, we include this for balance, to include costs incurred by governments who favour this somewhat unorthodox type of student assistance.

Defining "Ability to Pay"

As noted earlier, it is imperative to put costs in various countries into perspective by expressing them in terms of "ability to pay" (ATP). When the last version of this report was released in 2005 accepted measures comparing individual or household incomes were few and far between. The most frequently used measure in North America – household after-tax income – is scarcely used in Europe. Pre-tax household income, too, can be tricky, since households in different countries are of different sizes and are faced with different basic costs, depending on what essential services are provided in the public versus private sector.

The 2005 report used Gross Domestic Product per capita as a proxy for ATP. This measure had the obvious benefits of being both easy to obtain and a recognized measure of relative *national* purchasing power that has been used in a number of other publications. Equally, it had some obvious drawbacks, notably that it did not measure household income well and had a tendency of overstating affordability in countries with especially unequal distributions of income.

Since then, however, the OECD's has published *Growing Unequal? Income Distribution and Poverty in OECD Countries.* This publication offers previously unavailable data for gauging household income levels across national borders by reporting income levels across OECD countries in comparable units broken into population deciles.

In this report, we therefore use median income levels from this report OECD as a metric of ATP. These newer OECD figures are certainly an improvement over use of GDP/Capital. In all countries, GDP per capita overstates ability to pay somewhat because not all GDP is available for consumption. In countries with significant income inequality, average GDP/capita would be significantly higher than median income per capita, thus overstating relative ATP in those countries.

That is not to say that the new measure is without problems. For instance, in the United States where a greater proportion of household income is spent on health care, ATP for the United States may in fact be lower than represented here. And, of course, the switch of income sources makes it difficult to compare affordability results from the previous exercise to this one.

One clear difference, however, is that national measures of ATP are much more closely bunched together in this report than in the previous one. In the previous rankings, which used GDP/capita, the gap between the United States and New Zealand was 76% ($37,352 vs. $21,176). In this exercise, it is only 40% ($26,990 vs. $19,265). This means that a greater percentage of the variation between countries in this ranking is caused by cost differences (as opposed to income differences) than was the case in the previous one.

Table 2: Median Household Income in 2008 $ PPP

Country	Median Income
Australia	$23,017
Canada	$26,623
Denmark	$22,929
England and Wales	$24,652
Finland	$21,010
France	$20,650
Germany	$22,020
Japan	$22,790
Latvia	$13,646
Mexico	$4,615
Netherlands	$28,032
Norway	$26,623
New Zealand	$19,265
Sweden	$20,716
USA	$26,990

Source: OECD

Weighting the Indicators

The six indicators are based on different combinations of five separate inputs:

- Education costs (including tuition, books, and other necessary materials)
- Living costs (for these purposes, room and board)
- Grants
- Loans
- Tax Expenditures

Our reading of the literature on financial barriers to higher education (which, admittedly, is somewhat biased towards North American sources), permits us to conclude the following about the relative importance of the proposed indicators.

- *Education costs are the most important of the five inputs.* They are the most obvious "price" of education, and should be the foundation of all our indicators.
- *Living costs are nearly as important as education costs*, for the very simple reason that students need to have their living expenses covered.
- *Grants are nearly as important as education and living costs*. Again, following human capital theory, a dollar in grants should completely offset a dollar of tuition fees and so it stands to reason that they should be given nearly comparable treatment. However, because people seem to attach greater importance to costs than to subsidies, we have given them somewhat less weight than costs.
- *Loans are important, but less so than grants*. As per Finnie (2004), there are two types of barriers to education – one related to "cost-benefits" and the other related to liquidity. Grants contribute to solving both problems, while loans contribute only to solving the latter. As a result, we have accorded loans half the weight we have accorded to grants.
- *Tax Expenditures are the least important of all*. Even though tax expenditures are simply a convoluted form of grant, there appears to be significant scepticism among experts as to their efficacy in promoting access to education (which is, in theory, why governments choose to make education affordable).

On the basis of these findings, we have assigned the six rankings weightings as follows:

Table 3: Affordability Indicator Weightings

Indicator	Weighting
Educational Costs as a % of Median Income	10%
Total Cost as a % of Median Income	10%
Net Cost as a % of Median Income	25%
Net Cost After Tax Expenditures as a % of Median Income	15%
Out-of-Pocket Costs as a % of Median Income	25%
Out-of-Pocket Costs After Tax Expenditures as a % of Median Income	15%

Accessibility Indicators and Weightings

Indicators

Finding useful comparative indicators for accessibility is both easier and more difficult than finding them for affordability. Easier, in the sense that there appear to be considerably more consensus regarding what constitutes "accessibility" than what constitutes "affordability". More difficult, in the sense that there are very few common statistical measurements permitting useful cross-national comparisons.

This study has chosen to use four indicators of accessibility:

1) **Participation Rates.** In one sense, this is simply the most obvious of all possible indicators: the fraction of young people engaged in higher education studies. There are, however, some difficulties in trying to find standard cross-national measures of participation, in part because students in different countries do not all start higher education at the same time. This study will use the participation rate of the four years of age with the highest rates of participation, a measure developed by Herb O'Heron at the Association of Universities and Colleges of Canada.

2) **Attainment Rates.** Raw participation rates are unsatisfactory measures of accessibility for two reasons. Firstly, it measures participation as opposed to completion. Secondly, it corrects for a possible confound in participation rates between "number of students attending" and "length of time in studies" (i.e. a country with a lot of people in short programs may have the same participation rates as a country with fewer people in longer programs). Using some kind of measure of attainment corrects both these problems. This study will use the percentage of the 25 – 34 year old population has completed a "tertiary type A (higher education)" degree.

3) **The Educational Equity Index (EEI).** This measure is described in an earlier paper by one of the authors entitled *A New Measuring Stick* (available at www.educationalpolicy.org/pdf/measuringstick.pdf). In brief, it measures educational inequality by measuring the degree to which students from high socio-economic status backgrounds (as measured by parental education levels) are over-represented in higher education. The specific measure is best expressed algebraically:

$$\textbf{Jurisdictional EEI} = 100 \times \frac{\text{(\% of all males 45-65 with higher education degrees)}}{\text{(\% of all students whose fathers have higher education degrees)}}$$

High EEI scores imply that the composition of the student body "looks like" society as a whole; low EEI scores imply that the student body is drawn disproportionately from already privileged families.

4) **Gender Parity Index**. Proximity to gender parity is another possible indicator of equity in higher education access. In this indicator, any deviation from gender parity is treated as being indicative of inequality and therefore negative.

Weighting the Indicators

Our reading of the literature on access to higher education permits us to conclude the following about the relative importance of the proposed indicators:

- Generally speaking "access" is held to have two possible interpretations (see Anisef et. al, 1985). One measure ("Type I Access") measures the total number of places available while the other ("Type II Access") examines the social background of the students who fill them. One type of access is not generally thought to be more important than the other; therefore, we believe that indicators examining the "Type I" and "Type II" should have equal weight.
- The two type I indicators – participation and attainment – seem to be equally important measures of access and therefore deserve roughly equal weight
- The two type II indicators – the EEI and Gender Equity – do not seem to command equal weight. With respect to measures looking at the equality of participation, the Educational Equity Index, which is effectively a measure of socio-economic inequality, was deemed to be of greater importance than the Gender Parity Index, in part because there is not an enormous amount of variation in enrolments by gender between the countries included in this report. As a result, the EEI was given an 80% weighting within the "widening participation" section and Gender Parity index given a 20% weighting.

Table 4: Accessibility Indicator Weightings

Indicator	Weighting
Gross Enrolment Ratio (Tertiary)	25%
Educational Attainment (in the 25 – 34 year old population)	25%
Educational Equality Index	40%
Gender Parity Index (based on Tertiary GER)	10%

Part II: Affordability Rankings

This section looks at the data on affordability of higher education in various countries around the world. Complete data necessary for this analysis were available for fourteen countries: Australia, Canada, Denmark, England and Wales (not the United Kingdom as a whole because of the different funding arrangements in Scotland), Finland, France, Germany, Japan, Latvia, Mexico, Netherlands, New Zealand, Norway, Sweden, and the USA.

Data is presented for each country on five cost "inputs" - education costs, living costs, grants, loans and tax expenditures - and the five additional cost "indicators" derived from these inputs (a sixth indicator – education costs – is identical with an input). For each of the cost indicators, data is reported in *Economist* 2008 "Big Mac Dollars," an alternative metric of purchasing power parity (PPP). However, as noted in the methodology section, the rankings are based not on costs but on affordability; that is, costs divided by the ability of to individuals to pay them. Therefore, at the end of each of the six indicators sections there is also a table ranking the fifteen countries in terms affordability. Ability to pay, as discussed above, is defined as the median income in each country following a 2008 OECD comparative income distribution analysis.

Education Costs

The basic unit of analysis for measuring "affordability" of higher education is the cost of education. This cost is not simply "tuition"; it also includes any additional mandatory ancillary fees and the cost of books and study materials. Where a country has both public and private provision of higher education (i.e. the United States and Japan), an enrolment-weighted average of tuition costs has been used to arrive at an "average" tuition fee. In these cases, the headline number presented here needs to be treated with some caution for the purposes of analysing affordability, as cheaper options do in fact exist (see *The American Way(s)*, below, page 38).

Table 5 shows educational costs for all 15 jurisdictions in this survey. Not surprisingly, the cheapest educational costs are in those countries where tuition fees do not exist or exist only in patches: Sweden, Norway, Germany, and Denmark. There then follow a number of "low" tuition countries, including the Netherlands and New Zealand, and then some "medium" tuition countries, which include the United Kingdom and Canada. Finally, there are the two high tuition countries – Japan and the United States - both of which have substantial private provision of four-year higher education (though Australia is not far behind in education costs).

Table 5: Education Costs

Country	Education Cost
Australia	$7,692
Canada	$5,974
Denmark	$530
England and Wales	$5,288
Finland	$1,243
France	$585
Germany	$933
Japan	$11,865
Latvia	$3,299
Mexico	$5,077
Netherlands	$3,125
Norway	$596
New Zealand	$3,118
Sweden	$600
USA	$13,856

In terms of affordability, Norway's higher education system is the least expensive, with educational costs at just over 2.2% of median income level. Denmark, Sweden, Germany, and Finland are all under 5%. Education costs in most countries cluster between about five and twenty percent of median income. In the two highest-cost countries, Japan and the United States, education costs reach roughly 55 percent of median income. In Mexico, education costs come in significantly above 100% of median income. Again it should be remembered that students in the public versus private systems in Mexico face vastly different cost structures.

Table 6: Education Cost Affordability Rankings

Country	Education Cost	Median Income	%	Rank
Australia	$7,692	$23,017	33.42%	12
Canada	$5,974	$26,623	22.44%	10
Denmark	$530	$22,929	2.31%	2
England and Wales	$5,288	$24,652	21.45%	9
Finland	$1,243	$21,010	5.92%	6
France	$585	$20,660	2.83%	3
Germany	$933	$22,020	4.24%	5
Japan	$11,865	$22,790	52.06%	14
Latvia	$3,299	$13,646	24.17%	11
Mexico	$5,077	$4,615	110.01%	15
Netherlands	$3,125	$28,032	11.15%	7
Norway	$596	$26,623	2.24%	1
New Zealand	$3,118	$19,265	16.18%	8
Sweden	$600	$20,716	2.89%	4
USA	$13,856	$26,990	51.34%	13

Living Costs

In addition to education costs, students must also find the money to live. The cost of living in a country therefore materially impacts the accessibility of education in that it increases the total amount of money required to complete each year of study.

Table 7: Living Costs 2008

Country	Living Costs
Australia	$11,660
Canada	$7,033
Denmark	$9,413
England and Wales	$9,556
Finland	$6,734
France	$7,462
Germany	$5,317
Japan	$12,936
Latvia	$2,924
Mexico	$3,032
Netherlands	$7,223
Norway	$7,499
New Zealand	$7,552
Sweden	$8,665
USA	$9,759

This is perhaps the most difficult indicator within this survey to construct. To the extent possible, we have tried to compare like-to-like and included housing, food, transportation and other expenses while excluding "personal" expenditure on things like entertainment.

In most cases, data for this indicator is constructed on the basis of survey data. There are, however, a few exceptions; data for Mexico and New Zealand are constructed based on estimates published by the International Comparative Higher Education Finance and Accessibility Project (ICHEFAP). Data for the United States is based partly on data from the College Board's annual Trends in College Pricing (for room and board) and partly from ICHEFAP (everything else). The different methodologies used here may introduce some bias in terms of the results. Even in those countries where we are using superficially similar survey data, small differences in the way questions are asked or data provided can alter relative costs.

We have presented this data as best as possible given current constraints. For reasons that are not clear, three countries in particular (Latvia, Finland and Germany) would appear to us to be somewhat low while Australia seems somewhat high, compared to other countries. To the extent this represents measurement error of some kind, any errors stemming from this source may have knock-on effects within the rankings as data from this indicator feeds into 90% of the affordability score.

Total Costs

Just as direct educational costs are one way to measure "affordability," so too are total costs – that is, the combined costs of education and living expenses. Among the sixteen jurisdictions in this survey, the difference in total costs from the lowest (Latvia) to the highest (Japan) is roughly $18,000 per year of studies.

Again, with respect to total costs, certain countries cluster together. In continental Europe, total costs cluster between roughly $5,000 and $10,000. The Commonwealth countries (Australia, Canada, New Zealand and the United Kingdom) come next, ranging between roughly $10,000 and $15,000 in total costs. At the high end are Australia, the United States and Japan, with the latter having the highest costs at nearly $25,000 per year of study.

Table 8: Total Costs

Country	Total Cost
Australia	$19,352
Canada	$13,007
Denmark	$9,943
England and Wales	$14,844
Finland	$7,977
France	$8,047
Germany	$6,250
Japan	$24,802
Latvia	$6,223
Mexico	$8,108
Netherlands	$10,348
Norway	$8,096
New Zealand	$10,670
Sweden	$9,265
USA	$23,615

In terms of affordability – that is, total costs as a faction of median income - Germany is a clear winner at 28%. At the other end of the affordability spectrum are Mexico and Japan, where total costs run at well over 100% of median income. More generally, countries with no or low tuition are clear winners in the total cost ranking.

Table 9: Total Cost Affordability Rankings

Country	Total Cost	Median Income	Total Costs as a % of Median Income	Rank
Australia	$19,352	$23,017	84.08%	12
Canada	$13,007	$26,623	48.86%	9
Denmark	$9,943	$22,929	43.37%	6
England and Wales	$14,844	$24,652	60.21%	11
Finland	$7,977	$21,010	37.97%	4
France	$8,047	$20,660	38.95%	5
Germany	$6,250	$22,020	28.38%	1
Japan	$24,802	$22,790	108.83%	14
Latvia	$6,223	$13,646	45.60%	8
Mexico	$8,108	$4,615	175.71%	15
Netherlands	$10,348	$28,032	36.91%	3
Norway	$8,096	$26,623	30.41%	2
New Zealand	$10,670	$19,265	55.39%	10
Sweden	$9,265	$20,716	44.72%	7
USA	$23,615	$26,990	87.49%	13

Grants

The main way in which many governments help individuals offset the cost of attending higher education is through grants. Included in the definition of grant used here are certain kinds of rent, housing and food subsidies which are commonly provided by governments – notably in continental Europe – to reduce student living expenses.

Grants are highest in Denmark and the United States, at just over $4,500 per FTE. The difference here is that in Denmark, the grants come entirely from public sources while in the US, the grants are predominantly private (just under a quarter of grant dollars at 4-year institutions come from the federal Pell program, with the balance coming from institutional and private sources). Sweden, the Netherlands and Finland come next in terms of generosity of grants. Japan is unique in not having a system of grants at all.

Table 10: Grants

Country	Average Grant
Australia	$1,722
Canada	$1,385
Denmark	$4,714
England and Wales	$1,073
Finland	$2,336
France	$773
Germany	$429
Japan	0
Latvia	$965
Mexico	$88
Netherlands	$2,237
Norway	$1,819
New Zealand	$1,342
Sweden	$3,209
USA	$4,555

Net Costs

The term "net cost" refers to the total average cost of education minus the average grant available. It is generally considered a more accurate measure of affordability than education costs or total costs because it incorporates government subsidies into the cost calculation.

Table 11: Net Costs

Country	Net Cost
Australia	$17,630
Canada	$11,622
Denmark	$5,229
England and Wales	$13,772
Finland	$5,641
France	$7,274
Germany	$5,821
Japan	$24,802
Latvia	$5,258
Mexico	$8,020
Netherlands	$8,111
Norway	$6,276
New Zealand	$9,328
Sweden	$6,056
USA	$19,059

When analyzed in terms of average net costs per student, we again find that the countries in this survey cluster into recognizable groups, albeit not the same ones we have seen on previous measures of costs. Latvia, Germany, Finland, Norway, Denmark and Sweden are now clearly in a group by themselves. At the top end, there is more variation. Japan is clearly the most expensive at a little over $24,802. The United States, thanks to its large number of grants, is much cheaper at $19,059. Australia is relatively close by in terms of cost at $17,630. England and Wales and Canada lie about halfway between the top and bottom countries.

In the last version of this study, despite the North Americans having much higher net costs than European countries, the difference in per capita GDP (our measure of ability to pay) meant that, the affordability gap between the US and Canada on the one hand,

and continental Europe on the other was relatively small. Low per-capita GDP in the UK and New Zealand, meant that these countries were portrayed as much less affordable than might have been be expected.

Our decision to replace the GDP/capita measure of affordability with OECD median income figures changes the affordability picture to a very significant degree. In the previous study, the USA's very high GDP/capita figure to some degree offset its higher costs, making it appear closer in affordability to countries in continental Europe. Because the spread of median incomes across countries is much narrower than the spread of GDP/capita, this study shows much larger gaps between Europe and the USA.

Net costs as a percentage of median income varies considerably across the countries compared. Scandinavian countries and Germany see figures in the 20 to 30 percent range. Latvia, which has costs comparable to these countries on a dollar basis, suddenly looks less affordable when its lower average incomes are factored into the equation. Similarly, Mexico, which looks to be about middle of the pack on a dollar basis, becomes by some distance the least affordable country when measured on an ability-to-pay basis.

Table 12: Net Cost Affordability Rankings

Country	Net Cost	Median Income	Net Cost as a % of Median Income	Rank
Australia	$17,630	$23,017	76.60%	13
Canada	$11,622	$26,623	43.65%	9
Denmark	$5,229	$22,929	22.81%	1
England and Wales	$13,772	$24,652	55.86%	11
Finland	$5,641	$21,010	26.84%	4
France	$7,274	$20,660	35.21%	7
Germany	$5,821	$22,020	26.43%	3
Japan	$24,802	$22,790	108.83%	14
Latvia	$5,258	$13,646	38.53%	8
Mexico	$8,020	$4,615	173.80%	15
Netherlands	$8,111	$28,032	28.93%	5
Norway	$6,276	$26,623	23.57%	2
New Zealand	$9,328	$19,265	48.42%	10
Sweden	$6,056	$20,716	29.23%	6
USA	$19,059	$26,990	70.62%	12

Tax Expenditures

Grants are not the only form of non-refundable assistance provided by governments to reduce to cost of education. In addition, many governments provide various forms of tax expenditures and tax-based benefits. Often, these subsidies are given not to students directly but instead to their families in the form of increased family allowance cheques and/or reductions in taxes owed.

Six of the fifteen jurisdictions included in this survey provide students and their families with some sort of tax relief specifically designed to encourage post-secondary study. The most generous system is Germany's, where students' families are provided with very generous allowances, to tune of almost $2,500 US per student per year. Canada, (tax credits based in tuition and months of study and France (family allowances) also have reasonably generous tax assistance packages for their students and their families. In all three of these countries, tax expenditures per FTE are comparable to or larger than Grants per FTE.

The United States (mostly tuition deductions), and Japan (exemptions of student income from part-time jobs) also have notable tax expenditure programs, while in Australia, which exempts academic scholarships from tax, this form of assistance amounts to less than $15 per student per year, on average.

Table 13: Tax Expenditures

Country	Tax Expenditure
Australia	$13
Canada	$1,663
Denmark	$0
England and Wales	$0
Finland	$0
France	$879
Germany	$2,468
Japan	$426
Latvia	$0
Mexico	$0
Netherlands	$0
Norway	$0
New Zealand	$0
Sweden	$0
USA	$690

Net Costs After Tax Expenditures

"Net Costs After Tax Expenditure" refers to the total average cost of education minus all non-repayable assistance from governments, either in the form of grants or tax expenditures. Though some do not consider tax expenditures to have the same effect as grants in terms of impacting access to education (in part because benefits do not always flow directly to the student), the two forms of assistance are essentially equivalent in reducing total costs in that they are both forms of non-repayable assistance.

Table 14: Net Costs After Tax Expenditures

Country	Net Costs After Tax Expenditures
Australia	$17,618
Canada	$9,959
Denmark	$5,229
England and Wales	$13,772
Finland	$5,641
France	$6,395
Germany	$3,352
Japan	$24,376
Latvia	$5,258
Mexico	$8,020
Netherlands	$8,111
Norway	$6,276
New Zealand	$9,328
Sweden	$6,056
USA	$18,369

The presence of tax credits does not modify "net cost" affordability for many countries. They make higher education in US more slightly more affordable, but not to the extent that they become comparable with European levels. Only in Canada, where affordability falls to near-European levels, and Germany, which becomes the most affordable country in the survey, do the results make much difference.

Table 15: Net Cost After Tax Expenditures Rankings

Country	Net Costs After Tax Expenditures	Median Income	% Median Income	Rank
Australia	$17,618	$23,017	76.54%	13
Canada	$9,959	$26,623	37.41%	8
Denmark	$5,229	$22,929	22.81%	2
England and Wales	$13,772	$24,652	55.86%	11
Finland	$5,641	$21,010	26.84%	4
France	$6,395	$20,660	30.96%	7
Germany	$3,352	$22,020	15.22%	1
Japan	$24,376	$22,790	106.96%	14
Latvia	$5,258	$13,646	38.53%	9
Mexico	$8,020	$4,615	173.80%	15
Netherlands	$8,111	$28,032	28.93%	5
Norway	$6,276	$26,623	23.57%	3
New Zealand	$9,328	$19,265	48.42%	10
Sweden	$6,056	$20,716	29.23%	6
USA	$18,369	$26,990	68.06%	12

Loans

Another major tool for improving the affordability of education are student loans, which are used by all fifteen jurisdictions covered by this survey. Two of these countries' programs (Mexico's and France's), however, are little more than nominal, while two others – Germany's and Latvia's – are quite restrictive in the amounts they dole out to students. Denmark's loan system is relatively small due to the generosity of its grant system (see above, table 10). At the other extreme, the United States ($4,677), Finland ($4,281), and Sweden ($4,030) had relatively high amounts of loans, with Japan not far behind.

Table 16: Loans

Country	Loan Aid/FTE
Australia	$3,443
Canada	$2,263
Denmark	$1,208
England and Wales	$4,229
Finland	$4,811
France	$32
Germany	$412
Japan	$3,933
Latvia	$338
Mexico	$8
Netherlands	$2,051
Norway	$3,259
New Zealand	$2,859
Sweden	$4,030
USA	$4,678

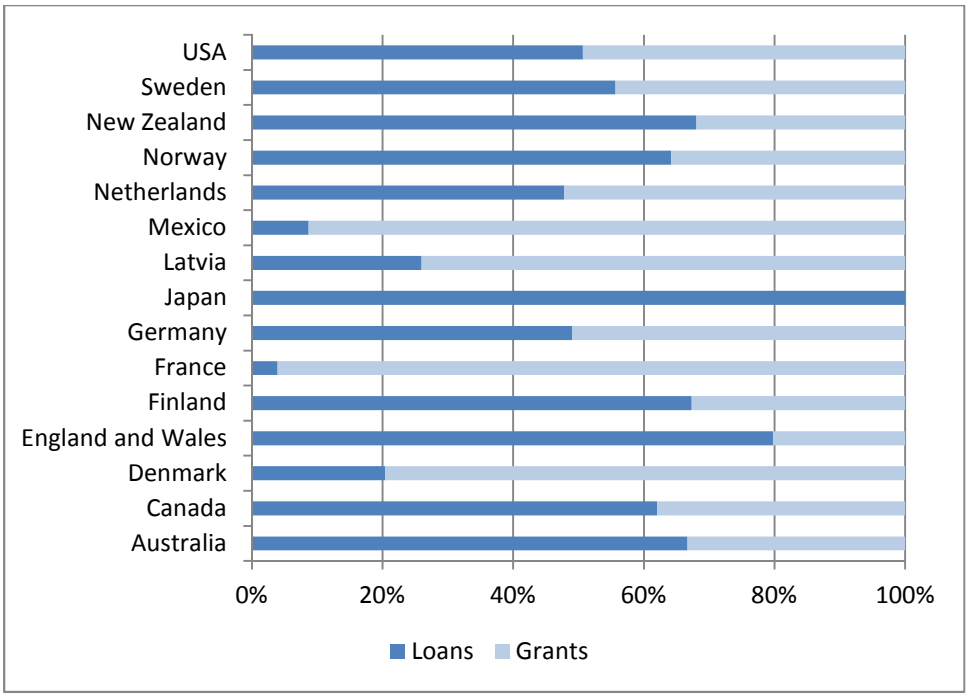
Seven of these countries have loan programs that are effectively "universal" (i.e. open to all or nearly all students without a need test); the UK, Sweden, the US (through its Stafford unsubsidized loan program), Finland, the Netherlands, New Zealand and Australia. Interestingly, these countries have very different take-up rates on their loans, despite their near-universal availability. In the UK and Sweden, over 80% of all students choose to take up a loan with Australia (77%) close behind Roughly six in ten New Zealanders and American take out loans, while in Finland only about half do. On the other end of the spectrum is the Netherlands, where only one student in five chooses to

take a loan, even though all are entitled to do so. This may indicate very different national attitudes towards educational debt, or it may reflect different underlying students needs (e.g. presence or lack of part-time employment opportunities or parental financial support). Certainly, it suggests that the same policy instrument may have very different effects in different countries, and for that reason alone, it is a phenomenon is worthy of future study.

Four of the countries in our survey provide decisively more grants than loans to their students – Mexico, Latvia, France and Denmark. Of these, only Denmark can be said to have anything like a reasonable system of loans – in the other three, the preponderance of grants signifies and atrophied loan system rather than an exceptional grant system. Three others – the United States, the Netherlands and Germany – essentially provide equal amounts of loans and grants (though in the case of the United States, it is worth pointing out that if private sources of aid are excluded, the balance is very heavily towards loans).

With the exception of Japan, which uses loans exclusively (though, confusingly, they are called "scholarships," which reflects the fact that there is a merit criteria attached to them), the rest of the countries in this survey provide between 60 and 80% of total aid in the form of loans.

Figure 1: Loan/Grant Mixes



Out-of-Pocket Costs

Out-of-pocket costs refers to the sum of expenditures for which a student must student must find resources in the short term – that is, all costs minus all student assistance, both in the form of loans and grants. It does not represent the "cost" of education accurately (because loans must be repaid) but it does represent the liquidity constraints facing students in a fair and accurate way.

Table 17: Out of Pocket Costs

Country	Out of Pocket Cost
Australia	$14,187
Canada	$9,358
Denmark	$4,021
England and Wales	$9,543
Finland	$830
France	$7,242
Germany	$5,408
Japan	$20,868
Latvia	$4,920
Mexico	$8,012
Netherlands	$6,060
Norway	$3,017
New Zealand	$6,468
Sweden	$2,025
USA	$14,382

The introduction of loans into the equation introduces a dramatic change to international affordability comparisons. Out-of-pocket costs in Finland, which has both a generous loan and a generous grant system, drop to essentially zero. Sweden and Norway also end up with very low costs. Nordic students, in effect, have almost no short-term financial worries. However, this also means that Nordic students graduate, on average, with much higher levels of debt than students elsewhere.

Another important point to note here is how far the United States had fallen in terms of affordability ratios. When looked at in simply in terms of educational or total costs, it was on a par with Japan. With grants and loans factored in, it is nearly a third cheaper than draws nearly level with Australia. Costs in New Zealand and Canada also fall

substantially towards European levels when using this measure of affordability; both end up being roughly equivalent to France.

Table 18: Out of Pocket Costs Rankings

Country	Out of Pocket Cost	Median Income	Out of Pocket Cost % of Median Income	Rank
Australia	$14,187	$23,017	61.64%	13
Canada	$9,358	$26,623	35.15%	9
Denmark	$4,021	$22,929	17.54%	4
England and Wales	$9,543	$24,652	38.71%	11
Finland	$830	$21,010	3.95%	1
France	$7,242	$20,660	35.05%	8
Germany	$5,408	$22,020	24.56%	6
Japan	$20,868	$22,790	91.57%	14
Latvia	$4,920	$13,646	36.05%	10
Mexico	$8,012	$4,615	173.62%	15
Netherlands	$6,060	$28,032	21.62%	5
Norway	$3,017	$26,623	11.33%	3
New Zealand	$6,468	$19,265	33.58%	7
Sweden	$2,025	$20,716	9.78%	2
USA	$14,382	$26,990	53.28%	12

Out-of-Pocket Costs, After Tax Expenditures

This measure of affordability includes all relevant forms of cost (educational and living) and all possible forms of aid (grants, loans and tax expenditures). It is in some ways the most complete measure of affordability, though it remains somewhat controversial because of the way it includes "indirect" student supports such as tax expenditures and family allowances.

Table 19: Out Of Pocket Costs After Tax Expenditures

Country	Out of Pocket Costs After Tax Expenditures
Australia	$14,174
Canada	$7,696
Denmark	$4,021
England and Wales	$9,543
Finland	$830
France	$6,364
Germany	$2,940
Japan	$20,442
Latvia	$4,920
Mexico	$8,012
Netherlands	$6,060
Norway	$3,017
New Zealand	$6,468
Sweden	$2,025
USA	$13,692

The final ranking table is very similar to the previous one, with the exception of Canada and Germany, two countries with relatively large tax expenditure bills. Germany rises from 5th to 4th on this measure, while Canada moves from 9th to 7th.

Overall, on this final measure of affordability we see the Finland, Norway, Sweden and Germany all with out-of-pocket costs representing less than 15% of median income, all highly affordable. There are then a group of countries including Denmark, France, Latvia, Canada, New Zealand, the Netherlands, England and Wales with costs ranging from 17% to 40% of median income. The United States and Australia lie just above this

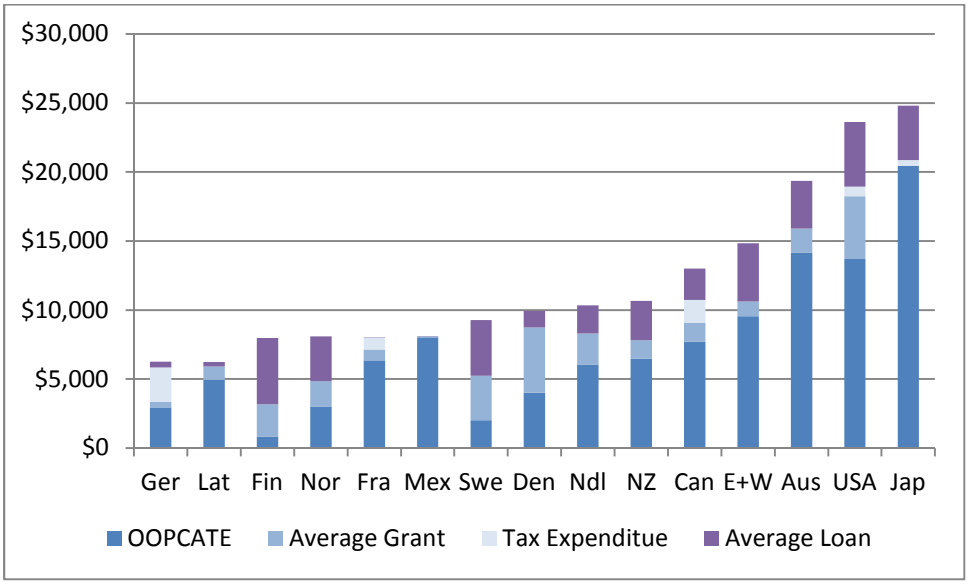
range. Then comes Japan at nearly 90% of median income and finally Mexico, the true outlier, at nearly 175% of median income.

Table 20: Out of Pocket After Tax Expenditures Affordability Rankings

Country	Out of Pocket Costs After Tax Expenditures	Median Income	OOPCATE as a % of Median Income	Rank
Australia	$14,174	$23,017	61.58%	13
Canada	$7,696	$26,623	28.91%	7
Denmark	$4,021	$22,929	17.54%	5
England and Wales	$9,543	$24,652	38.71%	11
Finland	$449	$21,010	3.95%	1
France	$6,364	$20,660	30.80%	8
Germany	$2,940	$22,020	13.35%	4
Japan	$20,442	$22,790	89.70%	14
Latvia	$4,920	$13,646	36.05%	10
Mexico	$8,012	$4,615	173.62%	15
Netherlands	$6,060	$28,032	21.62%	6
Norway	$3,017	$26,623	11.33%	3
New Zealand	$6,468	$19,265	33.58%	9
Sweden	$2,025	$20,716	9.78%	2
USA	$13,692	$26,990	50.73%	12

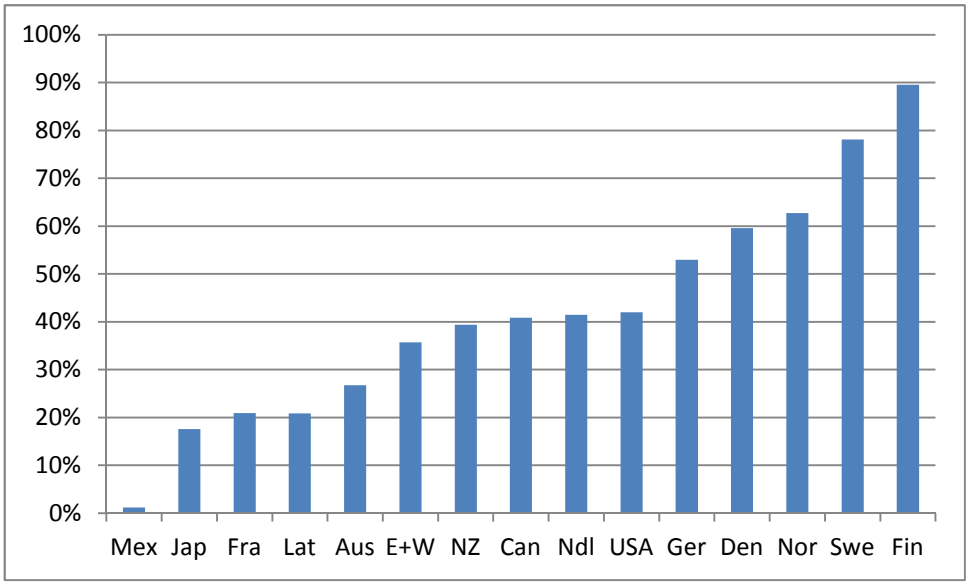
Figure 2 shows the contribution of different student aid instruments to reducing the costs facing students in different countries. What is shown is that countries that have very high expenses tend to use loans as a major means to help students defray their costs while countries where expenses are low tend to rely on grants and tax expenditures as a means of assistance. It also shows that most countries tend to rely heavily on a single type of subsidy to help students defray the cost of their education. Only one country – Canada – actually uses a balance of all three types of expenditures.

Figure 2: The Role of Grants, Loans and Tax Expenditures in Reducing Total Costs



Another way to look at this data is presented in Figure 3, which shows total average aid as a percentage of total average costs. Finland is clearly in a class of its own, providing students with, on average, enough loans and grants to cover 90% of their costs. The other Nordic countries and Germany do reasonably well on this measure, with all three providing their students with aid equal to over half of their total costs (much of the German aid, however is made up of tax expenditures paid to families rather than directly to students). Canada, the Netherlands, the United States and New Zealand each give out aid equal to roughly 40 percent of total costs, followed by England and Wales (36%), Australia (27%), Latvia and France (21% each) and Japan (18 percent). Mexico provides its students with practically no aid at all, with total aid equalling just 1% of total costs.

Figure 3: Average Total Aid as a Percentage of Total Average Costs



Scenarios for the UK:

How the Browne Review might change the UK's position

This report is being released immediately following the release of the Browne Review, and the UK government's Comprehensive Spending Review, but before any specific government policies with respect to tuition and maintenance grants have been announced. It is therefore unclear at this point precisely what the government's course of action will be. However, we do know cuts to the higher education budget will be roughly 40%, that significant rises in student fees are certain, and that cuts to student support budgets are possible.

It therefore seems appropriate to examine what would happen to the England's ranking results under a number of different possible scenarios for the future path of tuition fees and student aid in England (since it is unclear how changes will be implemented in Wales, we exclude it from the analysis here). For the sake of discussion, we present three possible scenarios.

Scenario 1	**Significant tuition increase, no change to maintenance grants**. In this scenario, the government raises the maximum tuition fee to 5,000 GBP. As in 2005, all institutions would likely move fairly quickly to charge the maximum fee. As per Lord Browne's recommendation, loans would be increased to take account of the higher level of tuition fees. Maintenance grants remain at their current level.
Scenario 2	**Major tuition increase, 20% cut to maintenance grants.** In this scenario, the government raises the maximum tuition fee to 7,000 GBP. This is probably a large enough increase to induce some variation in institutional pricing, so we assume an average tuition fee of about 6,000 GBP as a result. As per Lord Browne's recommendation, the loan maximum is increased to take account of the higher level of tuition fees. Total maintenance grant spending is cut by 20%, either by decreasing payments, restricting eligibility, or a combination of the two.
Scenario 3	**Spectacular tuition increase, 40% cut to maintenance grant.** In this scenario, the government eliminates all limits on tuition, as per Lord Browne's recommendation. As in scenario 2, this would induce some variation in institutional pricing, so we assume an average tuition fee of about 8,000 GBP as a result. As per Lord Browne's recommendation, loan maximum is increased to take account of the higher level of tuition fees. Total maintenance grant spending is cut by 40%, either by decreasing payments, restricting eligibility, or a combination of the two.

Currently, on most simple measures of cost England is, along with Australia, in a kind of high-middle band of cost: well above continental Europe, Canada and New Zealand, but well below the high-cost systems of Japan and the United States. Even major changes to cost in England therefore can't make the England's relative ranking slide too much because it's already close to the bottom on affordability.

What the various possible scenarios do, however, is move the UK out of the middle-band and towards the very high-cost band that the US and Japan inhabit.

Table 21: Post-Browne Cost Comparisons under various Scenarios, in GBP

Country	Edu. Cost	Total Cost	Net Cost	Out of Pocket Cost	Out of Pocket Cost After Tax Exp.
Finland	797	5,113	**3,616**	532	532
France	375	5,158	**4,663**	4,642	4,079
Germany	598	4,006	**3,731**	3,467	1,885
New Zealand	1,999	6,840	**5,979**	4,146	4,146
Canada	3,829	8,338	**7,450**	5,999	4,933
England	3,390	9,515	**8,828**	6,117	6,117
England Scenario 1	5,390	11,515	**10,828**	6,777	6,777
Australia	4,931	12,405	**11,302**	9,094	9,086
England Scenario 2	6,390	12,515	**11,965**	7,095	7,095
USA	8,882	15,138	**12,217**	9,219	8,777
England Scenario 3	7,390	13,515	**13,103**	7,312	7,312
Japan	7,606	15,899	**15,899**	13,377	13,104

In the above table, we have ordered countries by *net cost,* which is "educational costs" plus "living costs," minus grants. Educational costs in England are currently slightly lower than those in Canada, and substantially lower than Australia, USA and Japan. When living costs are added on, the high cost of living in England moves it closer to the Australian figure. When grants are included, the relationship between the UK, Australia and Japan stay roughly the same, but the US becomes substantially cheaper, primarily because of the billions of dollars worth of institutional and private grants there.

If the UK were to move to scenario 1, it would essentially erase all of the difference with Australia in terms of educational costs and net costs in the two countries; however, England would retain an advantage in out-of-pocket costs because of the very wide availability of student loans (and their relative absence in Australia). Regardless of the measure chosen, England would remain cheaper than either the USA or Japan, though.

Moving to scenario 2 would leave educational costs in England about half-way between the Australian and American figures, and still behind Japan. However, when grants are taken into account, Scenario 2 would leave net costs in England almost even with those in the United States (although, again, the greater availability of loans would keep the out-of-pocket cost figure somewhat lower).

Scenario 3 would have a much more radical effect on costs. Education costs would pass Japan's and nearly equal the United States. Net costs would rise to almost 1000 pounds per year above the American figure. Out of pocket expenditures would remain low (assuming the government allowed loans to rise proportionately to tuition fees), and so on some measures would still appear to be relatively "cheap"; however, the corollary here would be that English and Welsh students would be taking on levels of student debt not seen in any other country in the world.

However, as many commentators in the UK have already pointed out, comparing costs in England with average costs in the US and Japan is not quite an apples-to-apples comparison, as figures in the latter two countries include costs at those countries' substantial number of private universities. In table 22, we try to compare apples-to-apples by looking at just the public systems in the various countries.

Table 22: Comparison of High-cost Public Systems, in GBP

Country	Education Cost	Total Cost	Net Cost	Out of Pocket Cost	Out of Pocket Cost After Tax Exp.
US (Public only)	4,598	9,344	**7,669**	5,754	5,312
England	3,390	9,515	**8,828**	6,117	6,117
England Scenario 1	5,390	11,515	**10,828**	6,777	6,777
Australia	4,931	12,405	**11,302**	9,094	9,086
England Scenario 2	6,390	12,515	**11,965**	7,095	7,095
England Scenario 3	7,390	13,515	**13,103**	7,312	7,312
Japan (Public only)	5,844	14,137	**14,137**	11,615	11,342

Table 22 shows that although the sticker price of education in England is lower than in US public institutions, once grants and loans are taken into account, then England is *already* 800 pounds more expensive than the US, even before any post-Browne policy changes take effect. he only effect changes this fall are going to have is to reverse the two countries' position in terms of sticker costs and to extend the gap on the more inclusive definitions of cost.

With respect to Japan, currently the most expensive jurisdiction in the world, the comparison is more difficult. Clearly, either scenario 2 or 3 would give England higher educational costs. But when cost of living is factored in, net costs would remain higher in Japan and the gap increases even more when grants - of which Japan effectively has none - are taken into account. Also, when the countervailing effect of loans (which do

not reduce the net cost but do assist in overcoming liquidity constraints) are taken into account, England would remain not just cheaper than Japan, but also cheaper than Australia, even under the most extreme scenarios.

So will England have the world's most expensive public higher education system, post-Browne? If measured solely by the sticker price of tuition fees, then the answer is yes, almost certainly. However, using measures of take into account living costs and grants, England will remain second behind Japan and using measures which include loans, it would be third.

A more important question, of course, is whether or not any of this would matter in terms of accessibility. Elsewhere in this paper, we have noted that cheaper systems of higher education do not automatically lead to higher levels of accessibility. But this is uncharted territory; no one has ever tried to run a research-intensive system of public higher education with such a high reliance on student fees before. Either scenarios 2 or 3 would represent the single largest one-year increase in net costs anywhere in the world since mass higher education began. How students would react to such a major shift in costs – even with loans freely available – is impossible to tell. Nothing on this magnitude has ever been contemplated before.

Affordability: Composite Rankings and Concluding Remarks

This study has shown both that there are multiple perspectives to "affordability," and also that, depending upon which definition of accessibility is chosen, different countries may be perceived as being more or less affordable than others. However, when the various elements of the comparison are scored, weighted and summed in accordance with the methodology laid out in the introduction (see appendix 2 for actual scores), Finland clearly earns the title of having the "most affordable" system of higher education. This is largely because it is substantially cheaper than other countries on the "out-of-pocket" measures of affordability. However, on most measures, the top five countries are essentially identical, and in many ways, they can be considered identical in terms of affordability.

The Netherlands and France form the next group of countries, somewhat more expensive than the first group of five but still noticeably less expensive than the cluster of Latvia, Canada and New Zealand which follows. Beyond that, the scores start to spread out considerably: England and Wales are the next for affordability, and are substantially more affordable than the United States and Australia (which have similar affordability profiles despite having very different sticker prices for tuition). These two countries are in turn are more affordable than Japan, which is in turn more substantially affordable than Mexico.

Table 23: Overall Affordability Rankings

Country	Edu. Cost	Total Cost	Net Cost	Net Cost After Tax Exp.	Out of Pocket Cost	Out of Pocket Costs After Tax Exp.	Overall
Finland	6	4	4	4	1	1	1
Norway	1	2	2	3	3	3	2
Germany	5	1	3	1	5	4	3
Denmark	2	6	1	2	4	5	4
Sweden	4	7	5	6	2	2	5
Netherlands	7	3	6	5	6	6	6
France	3	5	8	7	8	8	7
Latvia	11	8	7	9	10	10	8
Canada	10	9	9	8	9	7	9
New Zealand	8	10	10	10	7	9	10
England and Wales	9	11	11	11	11	11	11
USA	13	13	12	12	12	12	12
Australia	12	12	13	13	13	13	13
Japan	14	14	14	14	14	14	14
Mexico	15	15	15	15	15	15	15

Of particular interest here is the fact that three of the bottom four in terms of affordability have very sizeable private higher education sectors. In Japan, the difference in fees between public and private are not especially significant; certainly not enough to make a difference in the rankings. However, in the US and Mexico, the gap in costs between the two sectors is significant; if only the affordability of public institutions was being examined, then affordability of the US would look essentially identical to Canada and Mexico would look similar to Australia (see *The American Way(s)*, p.38).

The American Way(s)

Public and Private Costs in the United States and Mexico

When calculating student costs, this report uses "average costs". In countries which have a more or less uniform tuition policy, this means that average costs are a decent proxy for the experiences of any individual student. However, in countries where tuition can vary significantly, "average costs" risk missing part of the big picture.

The United States and Mexico, in particular, form an interesting puzzle. Both have substantial private higher education sectors, accounting for about a third of all enrolment in 4-year institutions in both countries. In both countries, average tuition as reported in these pages is presented as being quite high; however, in both cases, there are cheaper options available to students. From an affordability perspective, this is important: for people having financial difficulties accessing universities, arguably what matters most is not the *average* tuition (which can be pushed higher by students choosing to buy a higher-priced education) but the *lowest available* tuition. If this standard were used, both the US and Mexico would do substantially better in these rankings.

To show how this is the case, consider Table 22. In both countries, the main drop is due to lower tuition fees (in Mexico it is the only drop in fees because there is essentially no student aid and no data showing different living costs for students at public and private institutions). In the United States, a $9,000 gap in total costs between average and public institution costs is somewhat offset by lower grant and loan awards in the public sector (partly due to the fact that awards are related to costs and partly because private institutions are more financially capable of providing grant aid), so that the difference in Out-of-pocket costs is only about $5,500. Still, this is a significant drop; at that level, the US ceases to look like an expensive jurisdiction; in fact, if it were counted as an independent country in this report, it would rank ahead of Latvia, Canada and New Zealand thanks mostly to its program of grants. The gap between public and private in Mexico is even larger; when considering public institutions only in Mexico, the country's affordability profile actually starts to resemble that of Australia.

Table 24: Public and Private costs in the US and Mexico

	Edu.	Total Cost	Net Cost	Net Cost After Tax Exp.	Out of Pocket Cost	Out of Pocket Costs After Tax Exp.
USA (average)	$13,856	$23,615	$19,059	$18,369	$14,382	$13,692
USA (private)	$24,700	$33,295	$25,798	$25,108	$20,409	$19,719
USA (public)	$7,173	$14,577	$11,963	$11,273	$8,976	$8,286
Mexico	$5,077	$8,108	$8,020	$8,020	$8,012	$8,012
Mexico (private)	$11,777	$14,269	$14,181	$14,181	$14,173	$14,173
Mexico (public)	$527	$3,019	$2,931	$2,931	$2,923	$2,923

This data allows us to make a more nuanced assessment of accessibility policy in these countries. Poorer students still have significant financial burdens to overcome, but they have cheaper options than those implied in the rest of this document. Net and out-of-pocket costs in Mexico fall to about 63% of median income, or roughly the same as Australia. The American system of public education turns out to be not that much different in terms of higher education than New Zealand or Canada's. Simply put, the USA is not quite the exception it is often made out to be. Though often seem from abroad through the prism of high-tuition institutions like Harvard and Yale, it needs to be acknowledged that it provides a number of low-cost options for its less wealthy students.

Some attention should be paid to Japan, a country with high costs and little public student assistance. On the face of it, Japan appears to be extremely expensive. This does not, however, mean that higher education is truly beyond the means of most Japanese families. As is the case in many East Asian countries, household savings rates in Japan are extremely high; hence, most students can likely draw upon parental contributions far larger than those commonly seen in Europe and North America. Thus, while all the various methods of calculating cost and affordability make Japan seem extremely expensive, that does not in practice make education less affordable in practice for Japanese students if they are able to draw on extensive family resources to meet these costs.

One aspect of affordability that has probably not been adequately represented in this survey is the differences of costs and affordability *within* countries. Generally, all countries show some variation in living costs between larger and smaller urban areas. In Europe, for instance, it is much more expensive to study in Paris or London than it is to study in Caen or Durham. Similarly, there are differences in family incomes within countries which would affect relative affordability inside a country. Of necessity, however, this survey has taken national averages in costs and ability to pay in order to make reasonably simple international comparisons.

More specifically, however, there are some countries in this survey where *educational* costs vary substantially, either between sub-national jurisdictions. Within Canada, for instance, one has jurisdictions like Quebec, which resembles Germany in terms of costs and available assistance and also jurisdictions like Nova Scotia, where costs and assistance levels give it an affordability profile closer to New Zealand's or Japan's. Similarly, in the United States, public universities in the large industrial states of the East and Great Lakes tend to be considerably more expensive than those in the agricultural states of the South, Midwest and West.

These regional differences in educational costs can have profound effects on affordability, particularly if they are combined with regional differences in living expenses (as noted above) and with regional differences in the availability of grants and loans. Indeed, certain states like Mississippi, Oklahoma and Louisiana have out-of-pocket costs after tax expenditures that rival Sweden's, making them among the most affordable places in the world to attend higher education.

Part III: Accessibility Rankings

This section looks at the data on the accessibility of higher education in various countries around the world. Unfortunately, data on accessibility is far less open to comparison than is data on affordability. Simply put, different countries care about different aspects of accessibility to different degrees, and hence collect very different statistics about their own systems. This renders detailed comparisons very difficult and limits our ability to make useful comparisons. As such, the accessibility rankings have used indicators, which are, albeit rough, widely available.

In this section, we have used indicators that attempt to capture the accessibility of higher education is in terms of two broad concepts. First, in terms of "how many" people get to participate in higher education and second in terms of "who" gets to participate. This distinction was referred to in the methodology section as Type I and Type II access, respectively. We have data for fourteen countries: Australia, Canada, the United Kingdom, Estonia, Finland, France, Germany, Mexico, the Netherlands, New Zealand, Norway, Portugal, Sweden, and the USA.

Participation (Best four-year enrolment) rate

The most obvious component of accessibility is how many people are given the opportunity to attend. Larger systems are widely seen as being more accessible than smaller ones. Yet although this is a simple concept, measurement of participation in a consistent, cross-national context is a remarkably tricky affair.

Participation rates are usually expressed as the number of students of a certain age group in a country enrolled in higher education as a fraction of the country's entire population of the same age. In a cross-national context, this creates problems because the age of the student body differs from place to place. In Anglophone countries, for instance, the "normal" age of students is 18-21 whereas in Scandinavia it is often 20-23. Hence, cross-national comparisons done at a certain age range are always liable to under- or over-state true participation depending on the age range chosen.

To avoid this problem, this study uses a methodology developed by the Association of Universities and Colleges of Canada (and later adopted by the OECD in the 2005 version of its "Education at a Glance" to compare international participation rates. This reports the participation rate of each country for the four-year age period in which that country has the highest four year participation rate. In effect, instead of choosing one lens to look at all countries, one allows each country to "choose its own lens."

Table 25: Participation Rankings

Country	Highest 4-year Participation Rate	Ages for Highest 4-year period	Rank
Australia	25%	19-22	10
Canada	23%	18-21	12
Estonia	20%	19-22	13
Finland	41%	21-24	1 (tie)
France	33%	18-21	5
Germany	32%	20-23	6
Mexico	19%	18-21	14
Netherlands	31%	20-23	7
Norway	33%	21-24	4
New Zealand	30%	19-22	8
Portugal	41%	19-22	1 (tie)
Sweden	23%	21-24	11
United Kingdom	34%	18-21	3
USA	30%	19-22	9

As Table 25 shows, using this method, Finland has the highest participation rate among the countries in this study with 41.3 percent of its 22-25 year-olds participating in higher education. Portugal (40.6%), France and England and Wales (34%), Norway (33%) and France (33%) are next, meaning that the top five countries in terms of participation are all European. Despite being in ninth, the United States is however, only marginally behind at 30%.

Attainment Rate

While data on enrolment rates is good at providing one snapshot of accessibility, it has one crucial limitation, in that it focuses on a particular age group. One of the supposed strengths of the North American system of higher education is that it provides more "second chances" to older students. If this is true, then focussing simply on the participation rate of a particular group of (generally young) students would provide a misleading picture of the extent to which a particular system is "accessible."

Simple participation rates also distort the access picture in another way, by measuring participation rather than completion. Though "drop-outs" are exceedingly hard to measure even in a national context, it is generally acknowledged that some countries do a better job of getting their students through post-secondary education than others. Thus, it is important to balance participation rates with attainment rates.

Attainment rates for the population aged 25-34 are presented below in table 23. Norway has the highest attainment rate at 40%. The United States has the second highest attainment rate of any country (35% of all 25-34 year-olds) though its "best four years" participation ranks lower. This signals the US system of higher education's openness to older students. The Netherlands comes in at third, followed by Denmark and the Sweden. Germany came in last at 15%.

Table 26: Attainment Accessibility Rankings

Country	Attainment	Rank
Australia	29%	6 (tie)
Canada	29%	6 (tie)
Estonia	24%	10 (tie)
Finland	29%	6 (tie)
France	24%	11
Germany	15%	14
Mexico	17%	13
Netherlands	34%	3
Norway	40%	1
New Zealand	30%	5
Portugal	20%	12
Sweden	31%	4
United Kingdom	29%	6 (tie)
USA	35%	2

In the last version of this study, all of the Anglophone countries did very well on this measure, while continental European countries trailed behind. Though the United States (first in 2005) is still in second place and the other Anglophone countries are not far behind the top five, continental Europe is clearly catching up. This result could mean that continental Europe is improving at bringing "second-chance" students of a slightly older age into systems of higher education or that these countries are simply improving student retention. That being said, Germany is still an outlier on the low end of the spectrum in Europe.

Educational Equity Index

Everywhere around the world, cultural capital plays a key role in access to education. Simply put, children of the elite are far more likely to enter higher education than are the children of the working class, regardless of the cost of education. Yet a key aspect of most working definitions of accessible higher education is the idea that youth from all backgrounds have access to advanced learning.

This, unfortunately, is an area of policy where there is very little data that permits useful cross-national comparison. Occasionally, an excellent researcher with access to high quality survey data may do an in-depth comparison of two countries: e.g. Marc Frenette's 2005 study comparing access to education in Canada and the United States. But not all countries track the social origin of their students, and those that do all use different metrics to describe them. The UK, for instance, uses "class" origin or postal codes; Canada tends to use family income quartile; New Zealand and the United States use race or ethnicity, etc. Each country's selection of metrics makes sense given its own history of social inequality, but it does tend to make international comparisons difficult. All measures in all countries show significant social stratification in the student body; finding a common measure to make comparative evaluations is a more difficult task.

In order to overcome this problem in at least a limited way, we have constructed the Educational Equality Index (EEI), which measures accessibility as a ratio of socio-demographic characteristics (specifically, parental education) of students to socio-demographic characteristics of the entire population. The specifics methodology behind the EEI may be found in the methodology section, above. In simple terms, however, a high EEI score indicates that the student body is very similar in socio-demographic characteristics to the overall population, while a low EEI score indicates that the student body is much more "elite" than the overall population.

This portrait of accessibility shown by the EEI table is an interesting one. Under this measure of accessibility, the Netherlands has the most accessible system of education, followed closely by Australia and Canada. Finland, New Zealand, and the USA follow. The real outlier in terms of accessibility is Mexico where there is a vast gulf between the percentage of university students whose father attained a university degree and the percentage of degree holders in the male population at large. The largely Anglophone countries (excluding the UK) all find themselves in the top half of the EEI ranking.

Table 27: EEI Accessibility Rankings

Country	% of University Student Pop. whose fathers have a university credential	% of Male pop. aged 40-60 with a university credential	EEI Score	Rank
Australia	29%	21%	.74	2
Canada*	31%	22%	.71	3
Estonia	46%	19%	.41	12
Finland	43%	30%	.70	4
France	43%	19%	.44	11
Germany	63%	31%	.49	10
Mexico	68%	16%	.24	14
Netherlands	42%	31%	.74	1
Norway	40%	23%	.58	8
New Zealand	30%	20%	.67	5
Portugal	28%	9%	.32	13
Sweden	29%	17%	.59	7
United Kingdom	51%	27%	.53	9
USA*	39%	25%	.64	6

(For Canada and USA, data for total male populations is for ages 45-64)

Gender Parity

Where the EEI indicator attempts to answer questions about the equitability of access based on students' social origins, the gender parity index attempts to do the same based on sex. This indicator has received some criticism since it was included in the first Global Rankings. The complaint seemed to be primarily that there was nothing inherently inegalitarian about having a much larger percentage of women than men in higher education and that providing low scores to countries that were (in some observers' eyes) the "most advanced" in terms of providing opportunities to women was somewhat perverse. However, a strict definition of "equal access" suggests that inequality, however it occurs, is a negative phenomenon and so we retain this indicator in the second edition of the publication.

The UNESCO definition of Gender Parity Index (GPI) is the ratio of female-to-male value of a given indicator, with GPI of 1 indicates parity between sexes; a GPI that varies between 0 and 1 means a disparity in favour of males; a GPI greater than 1 indicating a disparity in favour of females. Table 26 shows the Gender Parity Index score based on Gross Enrolment Ratio data from UNESCO.

In terms of scoring the gender parity index, one must not rank based on the highest or lowest GPI scores (which would imply a preference for one gender or the other), but rather based on the distance from the parity score of one. In most cases, this does little to change the rank score; only in Germany and Mexico, the only countries in the survey where males continue to outnumber females in higher education, does it make a major difference.

Mexico and the Germany have the students bodies where the gender balance is closest to fifty-fifty, however in both countries male students make up the majority of students—these are the only two countries in which this is the case. Most countries have gender balances in the range between 1.2 and 1.5, meaning that female students in all these countries make up between about 55 and 60 percent of the student body.

Table 28: GPI Accessibility Rankings

Country	GPI	Distance from Parity	Rank
Australia	1.30	0.30	6
Canada	1.36	0.36	7
Estonia	1.69	0.69	14
Finland	1.24	0.24	4
France	1.28	0.28	5
Germany	0.91	0.09	2
Mexico	0.98	0.02	1
Netherlands	1.40	0.40	8 (tie)
Norway	1.62	0.62	13
New Zealand	1.48	0.48	11
Portugal	1.22	0.22	3
Sweden	1.59	0.59	12
United Kingdom	1.40	0.40	8 (tie)
USA	1.40	0.40	8 (tie)

Composite Accessibility Rankings

Just as the previous section showed that different perspectives on the relative cost of higher education may lead to different conclusions about which countries are "affordable," this section has shown that multiple perspectives on accessibility may provide different insights as to which countries are most "accessible". Yet, there are enough similarities between the results of different measures of accessibility that one can draw some conclusions about the relative state of accessibility in different countries' higher education systems. Table 26 shows that final accessibility rankings once the different data elements have been scored and ranked according to the methodology introduced at the start of this paper. The actual scores behind this ranking are presented in Appendix 2.

Table 29: Composite Accessibility Rankings

Country	Participation	Attainment	EEI	Gender Parity	Overall Score
Finland	1 (tie)	6 (tie)	4	4	**1**
Netherlands	7	3	1	8 (tie)	**2**
Norway	4	1	8	13	**3**
USA	9	2	6	8 (tie)	**4**
Australia	10	6 (tie)	2	6	**5**
New Zealand	8	5	5	11	**6**
Canada	12	6 (tie)	3	7	**7**
United Kingdom	3	6 (tie)	9	8 (tie)	**8**
Sweden	11	4	7	12	**9**
France	5	11	11	5	**10**
Germany	6	14	10	2	**11**
Portugal	1 (tie)	12	13	3	**12**
Estonia	13	10 (tie)	12	14	**13**
Mexico	14	13	14	1	**14**

The final accessibility rankings put Finland in first place because of its strong attainment score and its respectable showing in the EEI measure. The Netherlands' runs Finland a very close second place primarily due to its very high EEI score.

The next two countries on the list are Norway and – perhaps surprisingly to some – the United States, both of which have strong attainment levels. Four commonwealth countries - Australia, New Zealand and Canada and the United Kingdom – occupy the next four spots in the accessibility ranking, and the first three of which have nearly identical scores. The fact that these four largely Anglophone countries end up so close together is striking evidence of policy congruence across a shared linguistic zone.

Next come a group of continental European countries – Sweden, France and Germany. They all have relatively mature systems of higher education, but tend to have very weak performance both in terms of participation and in terms of EEI. In effect, they all have smaller, more elite systems of higher education, and their scores reflect that.

Bringing up the rear are three countries where the "massification" of higher education is still a relatively new phenomenon – Portugal, Mexico and Estonia. The first of these receives an excellent score in terms of participation, but is much weaker on attainment and EEI; the other two are weak in all three areas. Interestingly enough, two of these countries (Mexico and Portugal) perform quite well on the gender equity indicator – an indication perhaps not of any major commitment to equality as of a slower process (or later start date) towards the feminization of the higher education population seen in other OECD countries.

Affordability and Accessibility in Latin America

One of the disappointments in developing this second set of affordability and accessibility rankings has been the difficulty in adding countries from the developing world. The nest we have been able to do is to add Mexico, which though a middle-income country is nevertheless a member of the OECD (whose *Education at a Glance* series is an invaluable source of data for this project).

However, Yuki Murakami and Andreas Blom of the World Bank,[1] using data obtained from a number of household surveys, did manage to put together some comparisons of certain Latin American countries (specifically, Peru, Colombia, Brazil and Mexico) with respect to affordability and accessibility, using the methodology used in the first version of our rankings (Cervenan and Usher, 2005). Because the underlying data is now somewhat old and because we have switched from using median income as opposed to GDP/capita as a measure of affordability, we elected not to put these results in our main ranking. However, it is still worth underlining the Murakami-Blom study's main conclusions, which were:

1. **Latin American countries may have free public education, but they are substantially less affordable than even low-affordability developed counties like Japan.**

   There are essentially four reasons for this. First, despite free or very low-cost public education, the fact remains that a great many students in each of these countries attends much higher cost private institutions. Second, costs of living costs are quite high, especially in Peru and Colombia. Third, student aid programs are tiny compare to those in more developed countries. And fourth, by measuring costs not in absolute terms but as a percentage of GDP/capita, the impact of these countries' much lower incomes is thrown into sharp relief.

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[1] Murakami, Y and A. Blom (2008), *Accessibility and Affordability of Tertiary Education in Brazil, Colombia, Mexico and Peru within a Global Context.* World Bank Policy Research Working Paper 4517. Washington: World Bank. Downloadable at: http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/547664-1099079956815/wps4517.pdf

2. **On more or less all measures of accessibility, Latin American countries fare worse than developed countries**.

It was probably to be expected that the Latin American countries would show lower levels of participation and attainment than more developed countries. But what was striking was how low the Educational Equity Index scores were. Even with essentially free tuition at public institutions, with the exception of Peru, these countries' EEI scores were substantially lower than even the most elitist continental European country (which in the previous survey was Belgium, not included in this year's report).

The Murakami-Blom report went on to make two key policy recommendations for Latin American countries, which were:

1) ***Take a comprehensive approach to tertiary education financing***. *Education and living costs, public financing of tertiary education, student assistance and other financing policies should be examined together. Tertiary education finance is more than only the issue of cost-recovery of public universities. Further, it is should be well-known that high affordability does not necessary lead to high access: even if the cost of education is low, access is also affected by other financial and non-financial factors.*

2) ***Expand the Availability of Student Loans and Grants*** *and in so doing, help families finance the relatively high costs of tertiary education.*

Part IV: Conclusion

The preceding pages have examined in some detail the issues of accessibility and affordability in comparative perspective. But what, in sum, does all this data and these rankings really tell us?

First of all, it tells us that Norway, the Netherlands and above all Finland are models for the international community when it comes to accessibility and affordability. All have high rates of access, high attainment rates, extensive programs of both loans and grants, and student bodies that are reasonably reflective of broader society. These countries are the undisputed success stories of this survey.

Second, the data and rankings suggest quite strongly that the links between accessibility and affordability are not as straightforward as some policymakers and analysts believe. Sweden and Germany, for instance, both of which do very well on the affordability scores, do not do especially well on any of the key measures of accessibility. On the other hand, the United States, which fare poorly on most affordability measures, does reasonably well in terms of accessibility. Finland, Norway and the Netherlands, have high scores across both the affordability and accessibility rankings.

Third, the data and rankings indicate that while continental European countries are generally more affordable than their North American and Australasian counterparts, the gap is less than is sometimes imagined. New Zealand and Canada, for instance, both of which have substantial tuition fees, are on some measures cheaper than countries like France, which do not have tuition fees at all.

Fourth, we have been able to show that in some countries – notably Mexico, Japan and the United States which have substantial private sectors – there are some substantial differences between "average costs" and "minimum available costs" and we have been able to make comparisons on the basis of both.

None of these findings are, of course, conclusive. There is much work still to be done in terms of fine-tuning the measurements and definitions of affordability and accessibility. Our affordability indicators, could, for instance be improved if we could more accurately unpack the total, net-and out-of-pocket costs facing students from different income groups, which would allow us to avoid "average cost" measures and allow us to focus more closely on the plight of the disadvantaged in each country. We are still not able to do this conclusively because very few countries publish sufficiently detailed data about the beneficiaries of their aid programs.

We also face a continuing difficulty in looking at accessibility in a comparative context. Participation, attainment and gender equity data is widely available across countries, but good data on the social origin of students in most countries is extremely limited, even at the level of relatively simple indicators such as the EEI. Even in those countries where EEI data is available, our rankings could be improved if data could be obtained not just for higher education as a whole, but also for specific advanced types of graduate and professional education, so that stratification differences between types of higher education institutions could also be examined.

Still, we believe that even in the absence of improved data, the second iteration of our rankings project can serve a significant purpose in bringing rigour to international comparative discussions on access and affordability, and to begin an international discussion on higher education by posing the questions of what makes higher education

truly “affordable” and “accessible.” As public finances are becoming increasingly stretched due to changing demography and the lingering effects of the 2008 financial crisis, the future of millions of young people around the world hinges upon researchers and policy makers getting the answers to these questions right.

Appendix I: Data Sources

Australia

Qualitative Contextual Financial Aid Information: Universities Australia (2007). Universities Australia: Sydney; ICHEFAP reports. Austudy: http://www.centrelink.gov.au/internet/internet.nsf/payments/austudy_rates.htm

Student Numbers: Department of Education, Employment and Workplace Relations Statistical download, and Australian Bureau of Statistics.

Student Population Figure for "most common four years": OECD Education at a Glance 2008 detail table download.

Tuition: *Australian University Student Finance 2006: Final Report of a National Survey of Students in Public Universities.*

Other Educational Costs: ICHEFAP, *http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Australia/Australia.pdf*

Loan Information: Department of Education, Employment, and Workplace Relations. *Higher Education Report 2007.*

Grant Information: Department of Education, Employment, and Workplace Relations. *Higher Education Report 2007.*

Attainment Rate: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: EPI. (2005). *Global Higher Education Rankings.* EPI: Toronto.

% Males aged 45-64 who Completed University: OECD. (2008). *Education at a Glance.*

Gender Parity Index: UNESCO Institute for Statistics download.

Income Deciles: OECD (2008). *Growing Unequal? Income Distribution and Poverty in OECD Countries.* OECD Publishing: Paris.

Canada

Student Numbers, Full-Time/Part-Time, Public/Private: Statistics Canada, Post-Secondary Student Information System (PSIS)

Student Population Figure for "most common four years:" ibid.

Tuition: Statistics Canada Annual Survey of University Tuition, 2007

Information on Loans, Grants and Tax Credits: The Canadian Education Project's Timeseries on Student Aid.

Cost of Living and Non-tuition Educational Cost: Based on the 2003-4 Ekos Student Income-Expenditure Survey.

Participation and Attainment Rates: OECD. (2008). *Education at a Glance.*

% Students with a Father who Completed University: Statistics Canada's Youth in Transition Survey

% Males aged 45-64 who Completed University: OECD Education at a Glance 2008 detail table download.

% Female Enrolled and Gender Parity Index: Statistics Canada, PSIS.

Denmark

Student Numbers, Full-Time/Part-Time, Public/Private: Statistics Denmark download. http://www.statbank.dk/statbank5a/SelectVarVal/saveselections.asp

Part Population Figure for most common four years of university attendance: Statistics Denmark download. http://www.statbank.dk/statbank5a/default.asp?w=1280

Student Population Figure for "most common four years": OECD Education at a Glance 2008 detail table download. The OECD data contains an age breakdown on FTE. The age ratios for FTE were then applied enrolment to more up to date enrolment figures from Statistics Denmark.

Loan Information: Denmark Ministry of Education. *Facts and Figures 2007.* Retrieved from *http://www.eng.uvm.dk/*

Forgiveness: Denmark Ministry of Education. *Facts and Figures 2007.* Retrieved from *http://www.eng.uvm.dk/*

Grant Information: Denmark Ministry of Education. *Facts and Figures 2007.* Retrieved from *http://www.eng.uvm.dk/*

Cost of Living and Non-tuition Educational Cost: http://www.life.ku.dk/English/education/living_in_denmark/cost_of_living.aspx and figures presented at 2005 CMEC conference.

Participation and Attainment Rates: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: N/A

% Males aged 45-64 who Completed University: OECD (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

Estonia

Student Numbers, Full-Time/Part-Time, Public/Private: EUROSTAT Download, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

Part Population Figure for most common four years of university attendance: Statistics Estonia download.
http://pub.stat.ee/pxweb.2001/Dialog/varval.asp?ma=PO023&ti=POPULATION+BY+SEX%2C+AGE+AND+COUNTY%2C+1+JANUARY&path=../I_Databas/Population/01Population_indicators_and_composition/04Population_figure_and_composition/&lang=1

Student Population Figure for "most common four years": Ratio from Eurostudent for age cohort were applied to student population totals from Statistics Estonia. Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Grant Information: Personal communication with Ministry of Education and Research official.

Tuition Information: International Comparative Higher Education and Finance Project.
Higher Education Finance and Cost-Sharing in Estonia.
http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Europe/Estonia.pdf

Cost of Living and Non-tuition Educational Cost: Eurostudent III Data Portal
http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Participation and Attainment Rates: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: Eurostudent III Data Portal
http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: OECD (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download.
http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

Finland

Student Numbers, Full-Time/Part-Time, Public/Private: EURDYDICE European Directorate-General for Education and Culture. (2008). *Eurybase: The Information Database on Education Systems in Europe – The Education System in Finland.* EURYDICE: Brussels.

Part Population Figure for most common four years of university attendance: Statistics Finland download. http://tilastokeskus.fi/tk/tt/luokitukset/index_alue_en.html

Student Population Figure for "most common four years": Ratio from Eurostudent for age cohort were applied to student population totals from Statistics Finland. Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Loan Information: KELA. (2007). Statistical Yearbook of the Social Insurance Institution. *www.kela.fi /statistics>Statistics online>Statistical Yearbook.*

Forgiveness: KELA. (2007). Statistical Yearbook of the Social Insurance Institution. *www.kela.fi /statistics>Statistics online>Statistical Yearbook.*

Grant Information: KELA. (2007). Statistical Yearbook of the Social Insurance Institution. *www.kela.fi /statistics>Statistics online>Statistical Yearbook.*

Cost of Living and Non-tuition Educational Cost: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Participation and Attainment Rates: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: OECD (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

France

Student Numbers, Full-Time/Part-Time, Public/Private:
http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&ref_id=NATTEF07113

Part Population Figure for most common four years of university attendance: National Statistics Institute

Student Population Figure for "most common four years": Eurostudent age breakdown
http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&ref_id=NATTEF07113

Grant Information: http://www.cnous.fr/_cnous__dossier_5.23.226.htm

Tuition Information: ICHEFAP

Cost of Living and Non-tuition Educational Cost: ICHEFAP

Participation and Attainment Rates: OECD (2008).

% Students with a Father who Completed University: Eurostudent

% Males aged 45-64 who Completed University: Eurostudent (40-60)

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download.
http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

Germany

Student Numbers, Full-Time/Part-Time, Public/Private: EUROSTAT Download, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

Part Population Figure for most common four years of university attendance:
Student Population Figure for "most common four years": Statistisches Bundesamt download, https://genesis.destatis.de/genesis/online/dMerkmaleDIR;jsessionid=489F47259FCBB9926CCD95970DB14494.tc21?operation=auspraegungMerkmale&levelindex=2&levelid=1221143097376&index=1

Loan Information: Statistical Download.
(http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/EN/Content/Statistics/BildungForschungKultur/Ausbildungsfoerderung/Tabellen/Content100/AusbildungsstaettenArtFoerderung,templateId=renderPrint.psml)

Forgiveness: N/A

Grant Information:
http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/EN/Content/Statistics/BildungForschungKultur/Ausbildungsfoerderung/Tabellen/Content100/AusbildungsstaettenArtFoerderung,templateId=renderPrint.psml)

Tuition Information: Some Lander (administrative regions) charge minimal tuition fees but most don't. For the purposes of this study we counted Germany as a no tuition country as the financial aid figures we have are for lander that have no tuition (the majority).

Cost of Living and Non-tuition Educational Cost: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Attainment Rate: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

Repayment Ratio: Shen & Ziderman (2008)

% Students with a Father who Completed University: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Indx: UNESCO Institute for Statistics

Japan

Student Numbers, Full-Time/Part-Time, Public/Private: Download from Research Institute for Higher Education, Hiroshima University. http://en.rihe.hiroshima-u.ac.jp/data_list.php?dataname_id=39#35

Loan Information: Masayuki, K. and Kambara Nobuyuki. (2006). *Equality and Cost Sharing in Japanese Higher Education.* Conference Paper: Tokyo. December 6, 2006. Conference: Worldwide Perspective of Financial Assistance Policies: Searching Relevance to Future Policy Reform for Japanese Higher Education. Hosts: The Task Force for International Comparative Studies of Financial Assistance Policies & Center for Reserach and Development for Higher Education, The University of Tokyo.

Tuition Information: Masayuki, K. and Kambara Nobuyuki. (2006). *Equality and Cost Sharing in Japanese Higher Education.* Conference Paper: Tokyo. December 6, 2006. Conference: Worldwide Perspective of Financial Assistance Policies: Searching Relevance to Future Policy Reform for Japanese Higher Education. Hosts: The Task Force for International Comparative Studies of Financial Assistance Policies & Center for Reserach and Development for Higher Education, The University of Tokyo.

Cost of Living and Non-tuition Educational Cost: The International Comparative Higher Education and Finance Project. *Higher Education Finance and Cost Sharing in Japan.* http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Asia/Japan.pdf

Participation and Attainment Rate: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

Latvia

Student Numbers, Full-Time/Part-Time, Public/Private: Statistics Latvia download. http://data.csb.gov.lv/DATABASEEN/Iedzsoc/Annual%20statistical%20data/09.%20Education/09.%20Education.asp

Part Population Figure for most common four years of university attendance: Statistics Latvia download. http://data.csb.gov.lv/Dialog/Saveshow.asp

Student Population Figure for "most common four years": Ratio from Eurostudent for age cohort were applied to student population totals from Statistics Latvia. Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Loan Information: Personal communication with Ministry of Education and Science-Foundation of Studies official.

Forgiveness: Personal communication with Ministry of Education and Science-Foundation of Studies official.

Grant Information: Personal communication with Ministry of Education and Science-Foundation of Studies official.

Tuition Information: Personal communication with Ministry of Education and Science-Foundation of Studies official and International Comparative Higher Education and Finance Project. *Latvia Report.* http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Europe/Latvia.pdf.

Cost of Living and Non-tuition Educational Cost: International Comparative Higher Education and Finance Project. *Latvia Report.* http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Europe/Latvia.pdf.

Participation and Attainment Rate: N/A

% Students with a Father who Completed University: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: N/A

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

Income Deciles: N/A. For Latvia, income deciles information from the OECD was unavailable. Comparisons were conducted for the "median income" category utilized Gross Domestic Product per-capita figures available from the UNESCO Institute for Statistics.

Mexico

Student Numbers, Full-Time/Part-Time, Public/Private: Blom, A. and Yuki Murakami (February 2008). *Policy Working Paper: Accessibility and Affordability of Tertiary Education in Brazil, Columbia, Mexico and Peru within a Global Context.* The World Bank Latin America and Caribbean Region Human Development Sector: Washington.

Loan Information: Blom, A. and Yuki Murakami (February 2008). *Policy Working Paper: Accessibility and Affordability of Tertiary Education in Brazil, Columbia, Mexico and Peru within a Global Context.* The World Bank Latin America and Caribbean Region Human Development Sector: Washington.

Grant Information: Blom, A. and Yuki Murakami (February 2008). *Policy Working Paper: Accessibility and Affordability of Tertiary Education in Brazil, Columbia, Mexico and Peru within a Global Context.* The World Bank Latin America and Caribbean Region Human Development Sector: Washington.

Tuition Information: OECD (2008). *Education at a Glance*

Cost of Living and Non-tuition Educational Cost: Blom, A. and Yuki Murakami (February 2008). *Policy Working Paper: Accessibility and Affordability of Tertiary Education in Brazil, Columbia, Mexico and Peru within a Global Context.* The World Bank Latin America and Caribbean Region Human Development Sector: Washington.

Attainment Rate: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris.

% Males aged 45-64 who Completed University: OECD Education at a Glance 2008 detail table download.

% Female Enrolled and Gender Parity Inex: UNESCO Institute for Statistics

The Netherlands

Student Numbers, Full-Time/Part-Time, Public/Private: Personal communication with ministry of education official.

Part Population Figure for most common four years of university attendance: Statistics Netherlands Download, http://statline.cbs.nl/StatWeb/publication/default.aspx?DM=SLEN&PA=7461ENG&D1=0&D2=0&D3=0%2c19-31&D4=0%2c10%2c20%2c30%2c40%2c50%2c55-58&LA=EN&HDR=G2%2cT&STB=G1%2cG3&VW=D

Student Population Figure for "most common four years": Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Loan Information: Personal communication with ministry of education official.

Forgiveness: Personal communication with ministry of education official.

Grant Information: Personal communication with ministry of education official.

Tuition Information: Personal communication with ministry of education official and OECD (2008). *Education at a Glance.*

Cost of Living and Non-tuition Educational Cost: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Participation and Attainment Rate: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris.

% Males aged 45-64 who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index:

New Zealand

Student Numbers, Full-Time/Part-Time, Public/Private: Statistics New Zealand download, http://www.educationcounts.govt.nz/statistics/tertiary_education/participation

Part Population Figure for most common four years of university attendance: Statistics New Zealand download, http://www.stats.govt.nz/census/2006-census-data/classification-counts/about-people/age.htm

Student Population Figure for "most common four years": OECD Education at a Glance 2008 detail table download.

Loan Information: Ministry of Education (2007). 2007 Student Loan Report.

Grant Information: "Student Allowance" http://www.studylink.govt.nz/about/statistics/student-allowance-ytd-12.html

Tuition Information: Ministry of Education and Tertiary Education Commission, Average Domestic tuition fees per EFTS in public providers.

Cost of Living and Non-tuition Educational Cost: The International Comparative Higher Education and Finance Project. *New Zealand Report..* http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Australia/New_Zealand.pdf.

Participation and Attainment Rates: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Males aged 45-64 who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics

Norway

Student Numbers, Full-Time/Part-Time, Public/Private: EUROSTAT Download, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

Part Population Figure for most common four years of university attendance: downloaded from Statistics Norway, http://statbank.ssb.no/statistikkbanken/Default_FR.asp?PXSid=0&nvl=true&PLanguage=1&tilside=selecttable/MenuSelS.asp&SubjectCode=02

Student Population Figure for "most common four years": Ratio from Eurostudent for age cohort were applied to student population totals from EUROSTAT. Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Loan Information: Personal communication with Lanekassen official.

Forgiveness: N/A

Grant Information: Personal communication with Lanekassen (student aid authority) official.

Cost of Living and Non-tuition Educational Cost: The International Comparative Higher Education and Finance Project. *Norway Report.* The International Comparative Higher Education and Finance Project. *Sweden Report.*

Participation and Attainment Rates:OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: OECD (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

Sweden

Student Numbers, Full-Time/Part-Time, Public/Private : EUROSTAT Download, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/

Part Population Figure for most common four years of university attendance: Statistics Sweden download. http://www.scb.se/

Student Population Figure for "most common four years": Ratio from Eurostudent for age cohort were applied to student population totals from EUROSTAT. Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Loan Information: The Swedish National Board of Student Aid (2007). *Repayment of Student Loan.* http://www.csn.se/en/2.135/2.624.

Grant Information: The Swedish National Board of Student Aid (2007). *Repayment of Student Loan.* http://www.csn.se/en/2.135/2.624.

Tuition Information: Sweden is a "no tuition" country.

Cost of Living and Non-tuition Educational Cost: The International Comparative Higher Education and Finance Project. *Sweden Report.* *http://gse.buffalo.edu/org/IntHigherEdFinance/files/Country_Profiles/Europe/Sweden.pdf*

Participation and Attainment Rates: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: OECD (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download. http://stats.uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=136&IF_Language=eng&BR_Topic=0

United Kingdom/England and Wales

Student Numbers, Full-Time/Part-Time, Public/Private : Higher Education Statistics Agency Downloaded Table. From http://www.hesa.ac.uk/

Part Population Figure for most common four years of university attendance: Office of National Statistics download. From http://www.statistics.gov.uk/default.asp.

Student Population Figure for "most common four years": Ratio from Eurostudent for age cohort were applied to student population totals from HESA. Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Loan Information: National Loans Company Statistical First Release, http://www.slc.co.uk/noframe/corpinfo/natstat.html

Forgiveness: N/A

Grant Information: National Loans Company Statistical First Release, http://www.slc.co.uk/noframe/corpinfo/natstat.html

Tuition Information: Personal communication with ministry of officials and data from OECD (2008). *Education at a Glance.*

Cost of Living and Non-tuition Educational Cost: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

Participation and Attainment Rates: OECD (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: Eurostudent III Data Portal http://iceland.his.de/eurostudent/report/index.jsp?x=35&y=19

% Males aged 45-64 who Completed University: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris. Detail table download.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics

United States

Student Numbers, Full-Time/Part-Time, Public/Private: The National Centre for Educational Statistics, http://nces.ed.gov/.

Part Population Figure for most common four years of university attendance: Census Bureau September 2007 Estimates.

Student Population Figure for "most common four years:" OECD Education at a Glance 2008 detail table download. The OECD data contains an age breakdown on FTE. The age ratios for FTE were then applied enrolment to more up to date enrolment figures from the National Centre for Education Statistics.

Loan Information: The College Board, *Trends in Student Aid 2007-08.* Retrieved from http://www.collegeboard.com. Shares for 4-year public and private then extrapolated using NCES' NPSAS:08 "first look" study (Wei et. al. 2009).

Grant Information: Pell information retrieved from http://www.ed.gov/finaid/prof/resources/data/pell-2006-07/pell-eoy-2006-07.html Shares for 4-year public and private, and private and employer grants then extrapolated using NCES' NPSAS:08 "first look" study (Wei et. al. 2009).

Tuition Information: The College Board, *Trends in College Pricing 2007-2008.* Retrieved from http://www.collegeboard.com/.

Cost of Living and Non-tuition Educational Cost: The College Board, *Trends in College Pricing 2007-2008.* Retrieved

Participation and Attainment Rate: OECD. (2008). *Education at a Glance.* OECD Publishing: Paris.

% Students with a Father who Completed University: personal communication with National Centre for Education Statistics official.

% Males aged 45-64 who Completed University: personal communication with National Centre for Education Statistics official.

% Female Enrolled and Gender Parity Index: UNESCO Institute for Statistics download.

Appendix 2: Indicator Scoring and Weightings Sensitivity

The purpose if this appendix is to help the reader understand more clearly how the data presented in this report was turned into rankings.

After the data for each indicator was collected and put into a standard measurement format (e.g. $US), the value for the "best" result was found and given a "score" of 100. All other results were given scores in relation to the "best" score. Where a "good" result was a high value (such as those for participation and attainment rates), other values were scored as a fraction of the best result; where a "good" result was a low value (such as those for all the affordability indicators), other values were scored as the inverse of the fraction of the best score. This process is best described through a fictitious example, as shown in the table below:

Table 30: Example of scoring

	Cost	Scoring	Score
Country A	$1000	100	100
Country B	$2000	100*($1000/$2000)	50
Country C	$3000	100* ($1000/$3000)	33

For each individual indicator, the rankings are simply a rank ordering of the scores. However, for the composite rankings of affordability and accessibility, each score needed to be weighted according to the weighting scheme shown in Part I of this report. The actual scores for the two sets of composite rankings, based on the data contained in the report, are shown below:

Table 31: Composite Affordability Scores

	Educ. Cost	Total Cost	Net Cost	Net Cost After Tax Exp.	Out of Pocket Costs	Out of Pocket Costs after Tax Exp.	Total
Australia	0.67	3.38	7.44	2.98	1.60	0.96	17.03
Canada	1.00	5.81	13.06	6.09	2.81	2.05	30.82
Denmark	9.69	6.54	25.00	10.00	5.63	3.38	60.24
England and Wales	1.04	4.71	10.21	4.08	2.55	1.53	24.13
Finland	3.79	7.47	21.24	8.49	25.00	15.00	80.99
France	7.92	7.29	16.20	7.37	2.82	1.92	43.50
Germany	5.29	10.00	21.57	15.00	4.02	4.44	60.32
Japan	0.43	2.61	5.24	2.13	1.08	0.66	12.15
Latvia	0.93	6.21	14.75	5.90	2.73	1.64	32.15
Mexico	0.20	1.62	3.28	1.31	0.57	0.34	7.32
Netherlands	2.01	7.69	19.71	7.88	4.57	2.74	44.59
Norway	10.00	9.33	24.19	9.67	8.71	5.23	67.13
New Zealand	1.38	5.12	11.78	4.71	2.94	1.76	27.70
Sweden	7.74	6.35	19.51	7.80	10.10	6.06	57.56
USA	0.44	3.24	4.02	4.17	1.85	1.17	14.89

Readers will note the size of the gap between the Nordic countries and the rest in terms of the total affordability "score." Different countries gain points on different measures of affordability, but Finland's first-place overall showing is due especially to its exceptionally low out-of-pocket costs. Because points are given to each country in proportion to the "value" of their indicator to that of the "best" country, extremely low values tend to give distortedly low points values to most countries. Hence, in terms of out-of-pocket costs, even the second-place country (the still very-affordable Sweden) only got a measly 10.10 points compared to Finland's 25.

This brings up the question of how sensitive the overall affordability rankings are to the indicator weightings. The answer is that while the point totals of each country can be

changed by moderate changes to the weightings, the ordinal rankings can only be changed by altering the weightings in very drastic ways. Finland, for instance, can only be knocked out of first place if one radically decreases the importance of the out-of-pocket affordability indicators (i.e. the ones which include student loans) and increase those that emphasize either simple education costs or total costs. On the bottom end of the scale, there are no combination of weightings that would take Japan and Mexico out of the bottom two positions. As a result, we feel that the rankings are reasonably good indication of relative affordability among nations.

Table 32: Composite Accessibility Scores

	Participation	Attainment	EEI	Gender	Total
Australia	15.24	18.13	40.00	0.67	74.04
Canada	14.02	18.13	38.38	0.56	71.08
Estonia	12.20	15.00	22.16	0.29	49.65
Finland	25.00	18.13	37.84	0.83	81.80
France	20.12	15.00	23.78	0.71	59.62
Germany	19.51	9.38	26.49	2.22	57.60
Mexico	11.59	10.63	12.97	10.00	45.18
Netherlands	18.90	21.25	40.00	0.50	80.65
Norway	20.12	25.00	31.35	0.32	76.80
New Zealand	18.29	18.75	36.22	0.42	73.68
Portugal	25.00	12.50	17.30	0.91	55.71
Sweden	14.02	19.38	31.89	0.34	65.63
United Kingdom	20.73	18.13	28.65	0.50	68.01
USA	18.29	21.88	34.59	0.50	75.26

The final points gap between the "best" and "worst" countries on the accessibility rankings is considerably smaller than it is for the affordability rankings. In part, this reflects the underlying reality that there is genuinely less difference between countries in terms of accessibility than there is in terms of affordability. However, it also means that there is greater possibility for movement in the rankings based on different weighting schemes.

Heavier weightings on participation would not affect the result at the top because the overall number on Finland already comes first in this indicator; a heavier weighting on gender parity would not change much because most countries have very low scores due to the fact that Mexico has so nearly an exact gender parity. The results are, however, sensitive to higher weights on attainment and EEI, which would slightly benefit the Netherlands and Australia. At the bottom of the rankings, Portugal would benefit from a higher emphasis on participation but other than that, there are no combination of rankings could move the continental European countries and Mexico out of last place, so poor are their overall scores.

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