International Higher Education Rankings

WHY NO COUNTRY'S HIGHER EDUCATION SYSTEM CAN BE THE BEST

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Executive Summary

By international standards, American colleges charge high tuition, and students must often take out loans to cover the cost of their higher education. This has prompted many to wonder why the United States cannot copy the higher education policies of certain other rich countries, such as Finland, where students at public universities pay zero tuition thanks to a heavy government subsidy. But subsidies are not the only aspect of a country's higher education system that policymakers should care about. Whether universities produce enough graduates and have enough resources to provide a high-quality education also matter—but these aspects of higher education are usually in tension with higher government subsidies.

This report compares the United States to 34 other developed countries, all members of the Organisation for Economic Co-operation and Development, and illustrates how these nations navigate the trade-offs between the various qualities policymakers and the public would like to see in their higher education system. While the public purse bears a relatively low share of the costs in the American university system, the United States ranks ahead of most of the developed world on other goals, such as college degree attainment and resources available for higher education. Conversely, "free college" nations such as Finland more often than not rank behind other countries on these other metrics.

While the analysis in this report cannot establish a causal relationship between these different qualities of higher education systems, the findings are consistent with a world in which government higher education regimes face budget constraints. A government that pays for a greater share of each student's college education can afford to send fewer of those students to college, resulting in lower overall degree attainment. Similarly, without the ability to raise revenue through tuition, colleges may have fewer resources to spend on each student's education. While this report does not take a position on how countries should design their university systems, thinking about higher education policy in the context of the trade-offs illustrated in this report will help policymakers craft higher education systems that best reflect their priorities and their citizens' values.

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High tuition and student debt have prompted many would-be reformers of the American higher education system to look to other developed countries for a "better" model. Which countries have gotten higher education "right," and how can we replicate their success in America? Some observers look to the Scandinavian countries, where public college tuition is largely free, while others cite Germany's low-cost colleges and expansive vocational training system.

While one can certainly draw lessons from other countries' higher education systems, searching for the "best" system can lead reformers astray. It results in one-dimensional comparisons of international higher education systems that focus on just one variable, such as whether a nation offers free tuition. These sorts of comparisons ignore crucial context, as a more desirable outcome on one dimension may lead to less desirable outcomes on another.

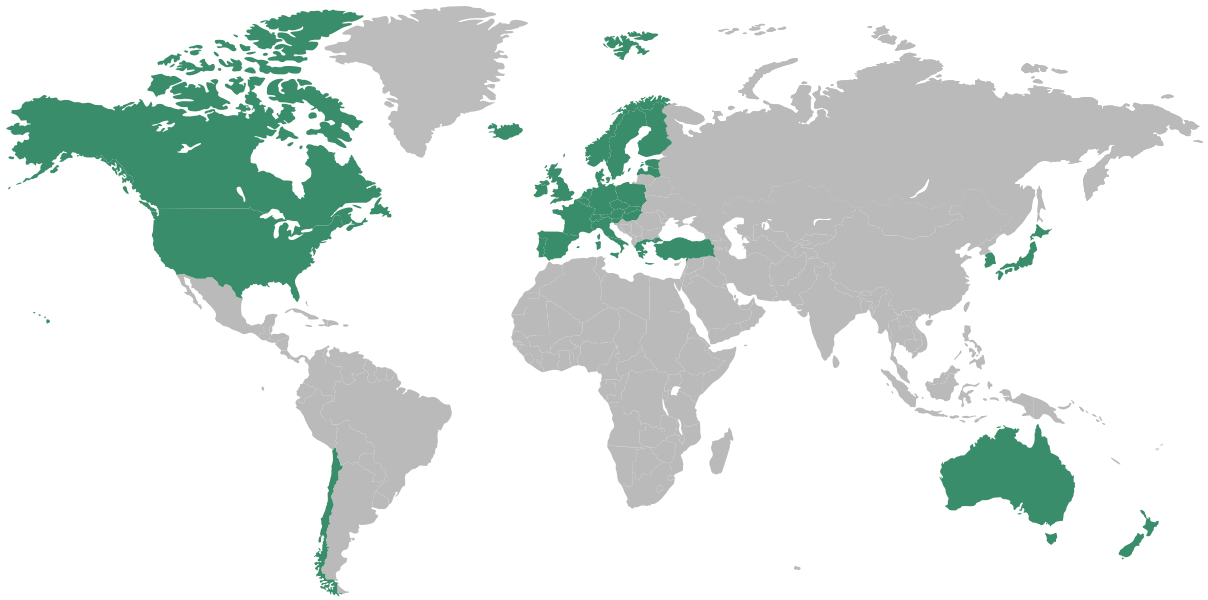
We propose a different lens to compare the higher education systems of the developed world. Rather than rank systems along one dimension, we measure how each performs on three metrics: attainment, resources, and subsidies. These are the outcomes of three goals that policymakers often pursue when designing a higher education system: Increase the number of students with a college education (attainment), boost the quality of universities by enabling them to spend more per student (resources), and lower the end prices that students pay by covering a greater share of education costs through state support (subsidies).

While policymakers frequently cite all these goals as desirable, in practice they are often in tension with one another. For instance, if the government pays a greater share of the cost of college, it can afford to send fewer students to college. If institutions are to have more resources, prices must rise. And if a university system enrolls more students to increase attainment, its existing resources are stretched thinner.

These trade-offs exist no matter how much money a government spends on higher education. Increasing the share of national income devoted to higher education raises the question of how that additional funding should be applied. Should extra funds go to enrolling more students, increasing colleges' resources, or lowering prices students pay? While no nation can escape these decisions, observers who cite other countries without context to make the case for reform in America imply otherwise. Indeed, policymakers often do not think about designing higher education systems in the context of these trade-offs. Sometimes, the trade-offs become apparent only after a policy has been implemented.

In this report, we assess how the higher education systems of 35 developed nations compare to one another on attainment, resources, and subsidies. While our analysis cannot make causal claims about the relationship among these three qualities, we can show whether the evidence is consistent with the theory that trade-offs exist between desirable aspects of a higher education system. Generally, a country that

Figure 1. Organisation for Economic Co-operation and Development Nations Included in This Report



Source: Organisation for Economic Co-operation and Development.

ranks higher on one quality should rank lower on the others, though there will of course be exceptions.

Viewing higher education systems in the context of these three competing goals will enable policymakers in the United States to be more fiscally and politically prudent about how to reform the American higher education system, if at all. Recognizing that trade-offs between desirable goals exist will also force policymakers to think critically about whether pursuing a certain goal is worth it. Finally, this lens also reveals the strengths of America's higher education system relative to other countries and warns that mimicking other countries' higher education policies might undermine those strong points.

Data and Methodology

Comparing the qualities of higher education systems across nations is challenging, since countries report statistics in different ways. Fortunately, the Organisation for Economic Co-operation and Development (OECD), an organization of 36 developed nations, produces an annual report that standardizes these statistics and reports them in a way such that countries are comparable with one another. The report, *Education at a Glance*, provides key high-level statistics for each country's higher education system (where available), including college attainment rates, spending, and government subsidies.[1]

The most recent edition of *Education at a Glance*, published in September 2018, includes data on the higher education systems of 35 OECD nations.[2] (The 36th OECD member, Lithuania, joined only recently, so it was not listed as a member in the report's most recent edition.) The OECD comprises the nations of the developed world; most members are classified as high-income nations and have a gross domestic product (GDP) per capita above $30,000 (Figure 1). The group includes almost all large countries in western and central Europe, Scandinavia, and the Baltic states. Outside of Europe, the OECD has members in the global Anglosphere (Australia, Canada, New Zealand, and the United States), East Asia (Japan and South

Korea), Latin America (Chile and Mexico), and the Middle East (Israel and Turkey).

In the analysis to follow, we compare the higher education systems of 35 OECD countries by looking at how each performs on three qualities: attainment, resources, and subsidies. We use specific metrics reported in *Education at a Glance* to quantify these characteristics.

Attainment. How many students does a higher education system serve? Higher levels of educational attainment are usually a central goal of policymakers. The measure of attainment used in this report is the percentage of young people (age 25–34) who have attained tertiary education.[3] "Tertiary education" is equivalent to an associate degree or higher in the United States. Our variable does not distinguish between sublevels of tertiary education; a student who earns only an associate degree and one who earns a doctorate both count equally as "attainers."

We use the share of young people with tertiary education instead of the share of the entire adult population because the former metric is likely to better reflect the outcomes of today's higher education system, rather than the system a country had decades ago. While there is still a lag between the time these individuals were educated and the present day, it is not nearly as drastic.

Attainment is not a comprehensive measure of how many people in a particular country interact with its higher education system. For instance, highly educated adult immigrants may boost a country's attainment rate, even though they were educated in other nations and thus do not reflect the outcomes of their new country's higher education system. In particular, this affects statistics for small countries with high immigration rates, such as Luxembourg. Students who travel abroad to earn their tertiary degrees and then return to their home country after graduation are counted as attainers, despite not interacting with the domestic higher education system. This may cause some nations' higher education systems to appear more productive than they actually are.

Attainment is also distinct from *access*, or the share of students who have ever entered tertiary education; attainment measures only those who receive a credential. Many students who start tertiary education will never complete it. Therefore, we opt to measure attainment instead of access because attainment is the outcome that access is generally meant to achieve: more people who have completed a tertiary education.

But some policymakers may see broad access as a desirable goal in itself. Several countries, including the United States, provide public support for "open access" institutions with minimal standards for admission and high dropout rates. While the "right" to pursue higher education regardless of qualifications may be important to policymakers in some countries, we do not incorporate that aspect of college systems into our analysis.

Resources. What is the quality of the education that a higher education system provides? While "quality" is subjective and thus immeasurable, we can measure the resources available to colleges and universities. Of course, the level of resources available cannot tell us how well institutions are spending that money, a caveat the reader should bear in mind. (For instance, some countries' spending on higher education may be more skewed toward research and development rather than instruction and other core expenditures that directly affect students' experiences.) But generally, institutions with greater resources have more latitude to offer a high-quality education. The measure of resources used in this report is each country's total expenditure on higher education, divided by the number of full-time equivalent students, measured as a share of the country's GDP per capita.[4]

Essentially, this gives us a measure of spending per student relative to the nation's economic capacity. We adjust spending per student for per capita GDP so that we do not unfairly penalize poorer nations. As the point of this exercise is to examine how higher education systems negotiate trade-offs necessitated by budget constraints, analyzing resources relative to economic capacity rather than the absolute level of resources is appropriate.

Countries' rankings may differ on the relative metric compared to the absolute metric. For example,

colleges in the United States spend more per student in absolute dollars than their counterparts in the United Kingdom. But GDP per capita in the UK is much lower than in the US, so British universities spend more than American ones *relative to their country's economic capacity*. Therefore, British universities are better resourced than their American counterparts by our measure.

Subsidies. How much of the cost of higher education does the government pay for? As a measure of subsidies, we use the share of domestic funding for institutions of higher education that comes from public sources.[5] In countries where this share is high, students and their families pay a small share of the overall cost of their education, and vice versa. For instance, if universities spend $20,000 per student and the government contributes $15,000 per student, then the "subsidy rate" is 75 percent, leaving students, their families, and other private actors to pay the remaining 25 percent.

Countries where the subsidy rate is above 80 percent often have "free tuition" policies at their public colleges;[6] at these institutions the cost of providing education is entirely paid for by the government (less non-tuition contributions from private sources such as philanthropists). However, the subsidy rate measures government subsidies relative to spending on the nation's *entire* tertiary education system. If a country offers free tuition at its public colleges but also has a large tuition-charging private sector, the subsidy rate may be significantly below 100 percent, despite the free tuition policy. This makes our measure of subsidies more comprehensive; the subsidy rate measures not only the magnitude but also the penetration of government support.

Measuring subsidies is an imprecise art. Due to the way OECD data are constructed, some publicly funded scholarships may inadvertently be counted as nonpublic spending. Government-backed student loans are also counted as private spending, even if the government offers these loans at below-market interest rates and includes loan forgiveness options. The indicator may therefore underestimate subsidies in countries with major national student loan programs, such as Australia, the United Kingdom, and the United States.

Caveats. When we refer to higher attainment, resources, and subsidies as goals of a higher education system, we mean that they are objectives that policymakers often cite as goals. We certainly do not endorse pursuing these goals at all times, as increasing the magnitudes of attainment, resources, and subsidies beyond an optimal point can have serious downsides. Overly high attainment can dilute the value of the college degree. Increasing school resources often means that marginal dollars are invested in unproductive activities, leading to spending bloat. High subsidies can blunt price signals that improve how a higher education marketplace functions.

While attainment, resources, and subsidies are all important, they do not account for many aspects of higher education systems. In presenting these statistics, we do not aim to present a comprehensive examination of higher education systems in other countries. Rather, looking at attainment, resources, and subsidies with one another is a useful, albeit simplified, lens for policymakers and observers to use when thinking about higher education policy and the necessary trade-offs involved.

The Rankings

Those trade-offs instantly become apparent when we rank the 35 developed nations according to their scores on attainment, resources, and subsidies. More often than not, a nation that ranks high on one of the metrics has a moderate or low ranking on the others. We cannot establish a causal relationship among these three qualities. For instance, we do not know if higher subsidies lead to lower attainment, or vice versa, or if both qualities are influenced by an unseen third factor, or a combination of the above. But whatever the reasons behind the relationships, trade-offs clearly exist among attainment, resources, and subsidies.

Table 1 shows the top five countries on each metric. (See Table A1 for the full ranking of all OECD nations.) While Scandinavia and central European

Table 1. Top Five Nations on Attainment, Resources, and Subsidies

Rank	Attainment	Resources	Subsidies
First	South Korea	United Kingdom	Finland
Second	Canada	Slovakia	Norway
Third	Japan	United States	Luxembourg
Fourth	Ireland	Sweden	Denmark
Fifth	Australia	Japan	Austria

Source: Authors' calculations from Organisation for Economic Co-operation and Development, *Education at a Glance 2018*, 2018, https://www.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en.

nations dominate the subsidies ranking, Anglosphere and East Asian countries claim most of the top spots on attainment and resources. Furthermore, no country except Japan appears more than once in Table 1. In other words, all countries struggle to achieve a high ranking on more than one goal, which supports the argument that pursuing one goal often comes at the expense of the other two.

For instance, Finland ranks first on the subsidies metric: 96 percent of the Finnish higher education system's funding comes from public sources. Domestic and European Union students can attend a public or government-dependent private institution free of charge, and most students also benefit from additional grants to help cover living expenses.[7] But Finland pays the price for those heavy subsidies in other areas: Of the 35 nations, the country ranks 11th on the resources metric and just 25th on attainment.

One reason for the low attainment rate is that Finnish universities have finite resources and considerable autonomy to set admissions standards. Largely lacking the ability to raise revenue from tuition, it makes little financial sense for institutions to admit large numbers of students, and therefore they are highly selective regarding which students they let in. In 2016, just 33 percent of Finnish applicants to first-degree tertiary education were accepted, one of the lowest admission rates in Europe.[8] Universities rely on comprehensive entrance examinations to make admissions decisions, and low acceptance rates create backlogs of applicants who often reapply in later years.[9]

After Finland, other northern and central European countries round out the top five nations on the subsidies metric: Norway comes in second, followed by Luxembourg, Denmark, and Austria. Each nation has a subsidy rate above 90 percent, meaning the government covers almost all the cost of providing higher education in these countries.

However, there is little overlap among the nations with the highest subsidies, and we measure those that rank near the top along the other dimensions. The top-ranking nation on attainment is South Korea, where 70 percent of young people have attained tertiary education.

Korea is perhaps the clearest example of a nation prioritizing one of the higher education goals (attainment) over the other two. Despite its top ranking on attainment, the nation ranks near the bottom on both resources and subsidies. The Korean government pays just 36 percent of the cost of higher education, leaving students and other private entities to pick up the rest of the bill. But the amount Korean universities themselves spend to educate students is also low; they spend just 29 percent of per capita GDP per student. That Korean universities spend relatively less per student means that tuition at public universities in Korea is also relatively moderate,

despite the low subsidy rate. Korean students pay less in tuition than other high-attainment countries such as Canada, Japan, and the United Kingdom.

A moderately priced higher education system that relies little on government support, combined with high-quality secondary schools that consistently produce high scorers on international standardized tests,[10] has led the vast majority of the nation's youth to earn college degrees. However, the relative value of these degrees is well below other OECD nations, as the supply of college graduates has outstripped the availability of college-level jobs. Relative to the rich-world average, college-educated South Koreans receive a smaller wage premium over their peers with lesser degrees.[11] As of 2017, the unemployment rate for college graduates exceeded that of people with less education.[12] Korean President Moon Jae-in has warned that youth unemployment in the country, if left unaddressed, could "increase to the level of a national disaster."[13]

The other top nations for attainment are either in the Anglosphere or eastern Asia: Canada ranks second with a 61 percent attainment rate, followed by Japan (60 percent), Ireland (53 percent), and Australia (52 percent). The United Kingdom ranks sixth on attainment but is more notable for its position on another ranking. The British higher education system is first in the developed world regarding resources. Universities in the United Kingdom spend $26,000 per student, which is equivalent to 63 percent of per capita GDP.

The government does not, however, foot most of the bill for Britain's universities. In England, where the vast majority of the country's population is concentrated, universities charge undergraduate students tuition of up to $11,856, making English universities some of the most expensive in the world. That is why the United Kingdom ranks last on subsidies in our analysis, with just 26 percent of higher education funding derived from public sources.

However, Britain's student loan program complicates this high-tuition, low-subsidy story. To enable students to afford these high fees, the government offers student loans that fully cover tuition. Ninety-five percent of eligible students borrow. Repayment is income contingent; new students pay back 9 percent of their income above a threshold for up to 30 years, after which remaining balances are forgiven. Despite the lengthy term, the program is heavily subsidized: The government estimates that just 45 percent of borrowers who take out loans after 2016 will repay them in full (a benefit not captured in the OECD data).[14]

England's high-resource, high-tuition model is relatively new. Until 1998, English universities were tuition-free, with the government directly appropriating the vast majority of higher education funding. According to an analysis of the system by Richard Murphy, Judith Scott-Clayton, and Gillian Wyness, rapid increases in demand for education during the late 20th century led to swelling numbers of students and therefore a precipitous decline in resources per head available to universities.[15]

In 1998, the center-left government of Tony Blair began allowing institutions to charge tuition to supplement their direct government funding. At the same time, the government expanded its student loan program and introduced income-contingent repayment. Over the next two decades, university enrollments and funding both surged, and today the United Kingdom ranks among the top nations for both resources and attainment.

While the 1998 reform allowing institutions to charge tuition was a major development, England's transition from a high-subsidy country to a low-subsidy one happened more gradually. Tuition fees in the years right after the reform were still low; it was more recently that rises in tuition caused the country's higher education system to become majority funded by the private sector. Since our measure of attainment looks at the population age 25–34, it should be noted that the United Kingdom's relatively high attainment rate partially reflects earlier regimes, when subsidies were higher (and resources were lower). However, almost all the students reflected in those figures still attained their degrees during the "post free" period of English higher education.

After the United Kingdom, the next best-resourced country is Slovakia, where universities spend 54 percent of per capita GDP per student. This is because of

Slovakia's relatively low GDP per capita ($30,000 in 2016)[16] and relatively low enrollment at Slovak universities.[17] Following Slovakia on the resources ranking are the United States (spending 53 percent of GDP per capita), Sweden (spending 51 percent), and Japan (47 percent).

The vast majority of OECD nations (24 of 35) rank in the top third of countries on at least one of the three metrics, suggesting that most nations try to prioritize one of the goals rather than strike a balance among the three. A handful of nations, generally richer ones such as the United States, Sweden, and Norway, rank in the top third of nations on two of the three metrics. In these nations, public expenditure on tertiary education is generally high as a share of GDP.

For instance, Norway and Sweden spend 1.7 percent and 1.4 percent of GDP on government subsidies for their higher education systems, respectively, compared to an OECD average of 1.0 percent.[18] However, high levels of public spending may constrain these countries in the future should they want to expand tertiary education access to a greater share of their populations. Currently, both Norway and Sweden have attainment rates below 50 percent.

Only the tiny grand duchy of Luxembourg, which is one of the wealthiest countries in the world with a GDP per capita of $103,000, ranks in the top third of nations along all three dimensions. As Luxembourg is a unique polity in many regards, we caution against overinterpreting its high positions on our lists. For obvious reasons, rich countries can afford more expansive higher education systems that combine high levels of spending and attainment with hefty subsidies.

Richer nations also attract immigrants. Luxembourg has an extremely high immigration rate, with the foreign-born share of the population (48 percent) almost three times the share in any other European Union country.[19] Immigrants to Luxembourg are much more likely than natives to have a college degree, dramatically raising the overall attainment rate.[20]

While most countries intensely pursue one of the goals, others embrace moderation. For instance, France ranks 18th on attainment, 16th on resources, and 14th on subsidies—the middle of the pack on all three dimensions. Tuition at public universities in France is nominal due to a heavy government subsidy, but the country also has a significant tuition-charging private sector, which has doubled in size since 1998, lowering the overall subsidy rate.[21] Poland has free tuition for residents attending public institutions, but its higher education system's private sector lowers its overall subsidy rate to 83 percent, or 12th among OECD nations on subsidies.[22]

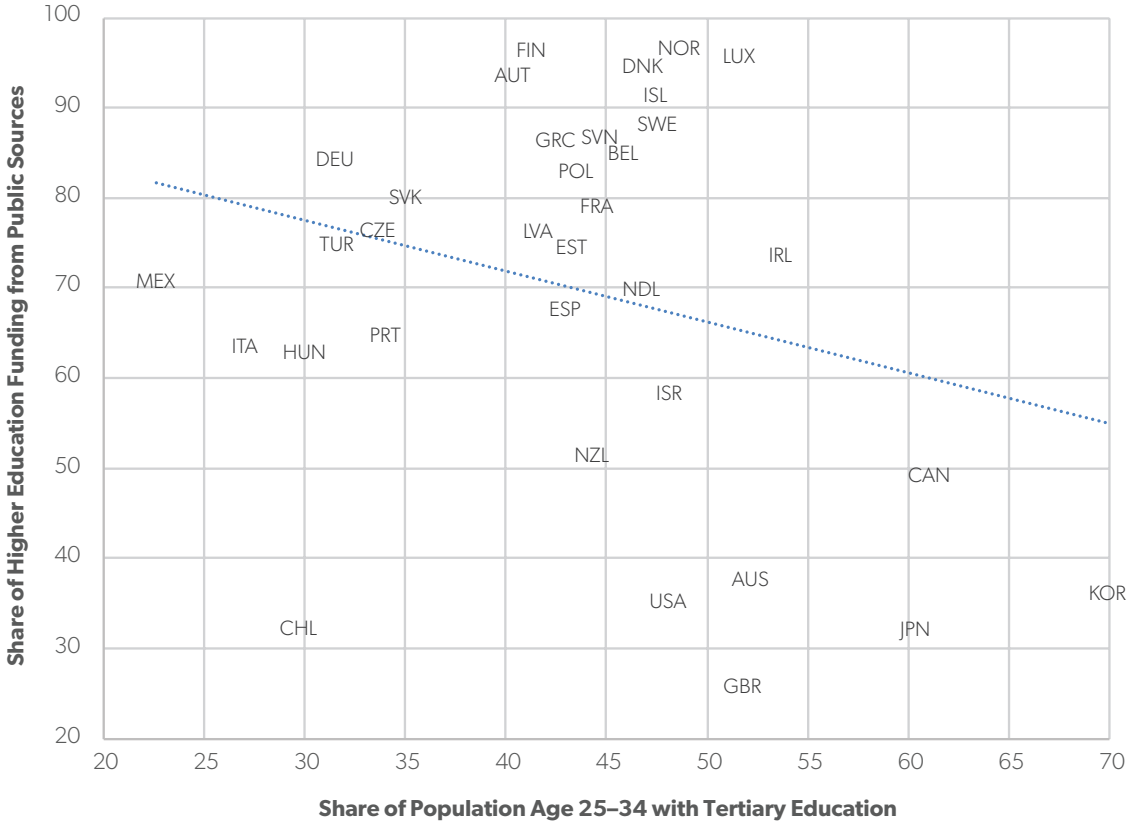
For its part, the United States ranks third on resources, 11th on attainment, and 31st on subsidies. In other words, America has well-resourced universities that produce a reasonably high college attainment rate, but students must shoulder a greater share of the cost of their education than in most other developed countries. Like Britain, though, America also has an expansive and subsidized student loan program that it does not get credit for in the subsidies metric, meaning the American government provides students with more support than the OECD statistics alone suggest.

Balancing Attainment, Resources, and Subsidies

Although Finland, South Korea, and the United Kingdom dominate the respective dimensions of subsidies, attainment, and resources, they perform well below rich-country averages on one or both of the other metrics. For instance, the United Kingdom ranks first on resources but dead last on subsidies. South Korea ranks first on attainment but 30th on subsidies and 31st on resources, almost at the bottom of the ranking on both. Finland is first on subsidies but scores low (25th) on attainment. This reinforces the idea that nations face trade-offs: Designing a higher education system to be strong in one area may require accepting mediocrity in another.

This is apparent when we look at how the three metrics correlate with each other. Attainment, resources, and subsidies are all negatively correlated with one another, meaning a country with a higher score on one quality is more likely than not to have a lower score on another. While correlations are not evidence

Figure 2. Attainment vs. Subsidies



Source: Authors' calculations from Organisation for Economic Co-operation and Development, *Education at a Glance 2018*, 2018, https://www.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en.

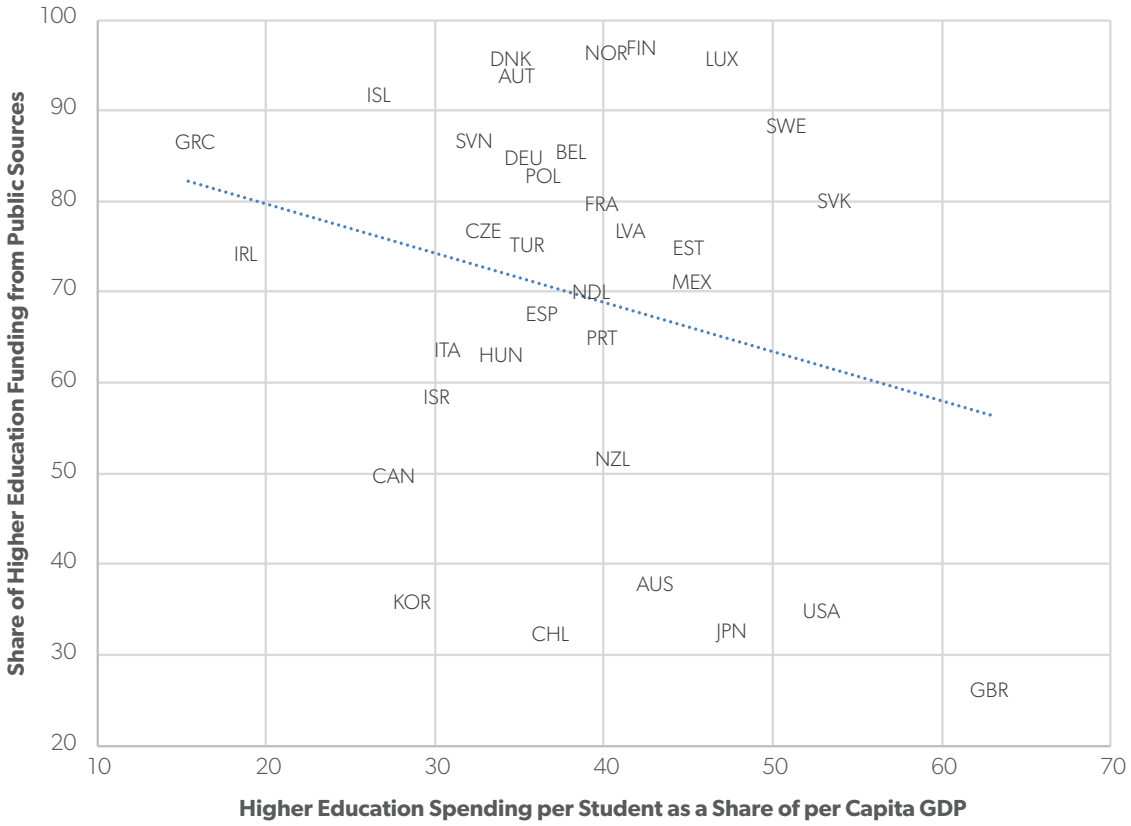
of a causal link in any direction among attainment, resources, and subsidies, these results are consistent with the idea that higher education systems face budget constraints and therefore must prioritize certain goals over others.

Nowhere are the negative correlations between metrics more pronounced than in the relationship between attainment and subsidies (Figure 2). The attainment and subsidy correlation is –0.27. While certainly nations perform better than expected on attainment given their levels of subsidies, and vice versa, the clear relationship is negative.

This is all the more surprising considering that higher subsidies are frequently cited as a way to boost the share of the population with college degrees, by making education cheaper for students. But these results are consistent with an alternative mechanism linking subsidies and attainment: When subsidies are higher, governments can afford to send fewer students to college. In response, governments and universities often manage the number of students enrolled in higher education—either through explicit caps on student numbers or through softer measures such as mandatory university entrance exams and other selective admissions criteria.

Figure 2 shows that in nations where higher education is more than 80 percent subsidized by the government, attainment levels are moderate at best. Only one of these nations (Luxembourg) has an attainment rate above 50 percent. But in countries with much lower subsidies, college attainment rates are *significantly higher*. There are seven countries where

Figure 3. Resources vs. Subsidies



Source: Authors' calculations from Organisation for Economic Co-operation and Development, *Education at a Glance 2018*, 2018, https://www.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en.

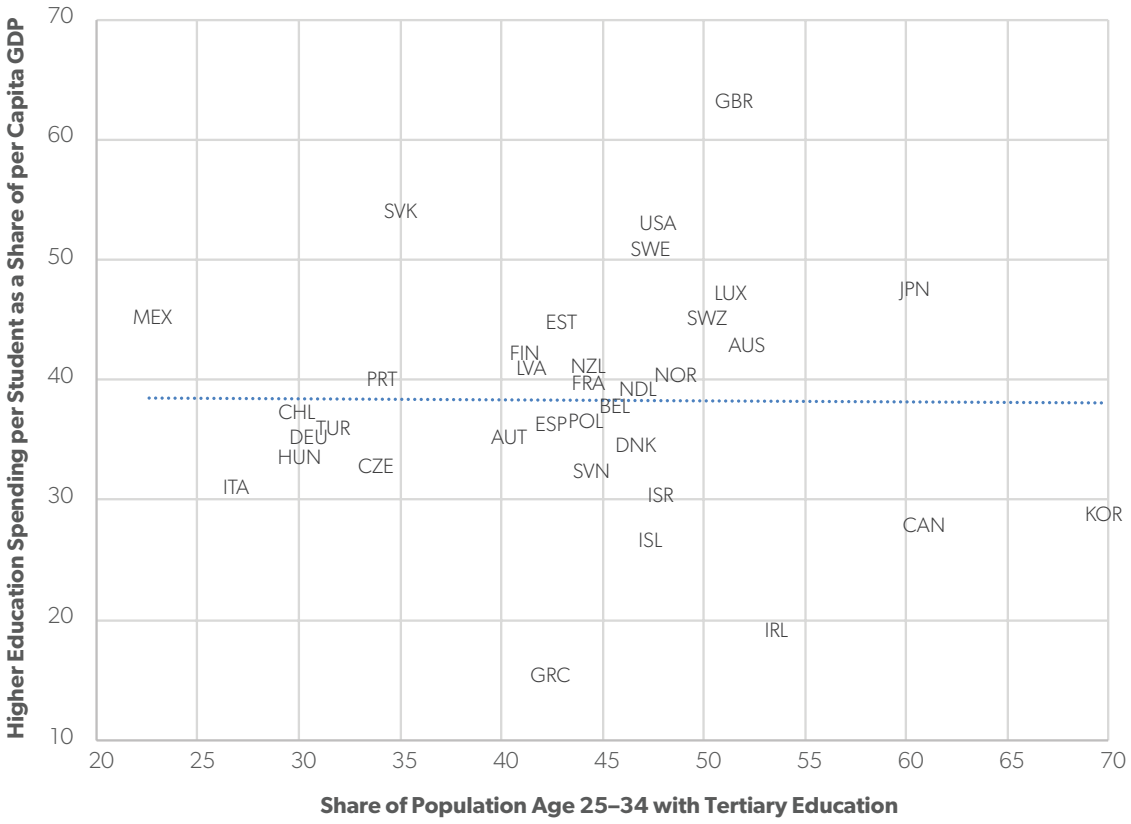
the government directly pays less than half the cost of higher education; the attainment rate is above 50 percent in five of them.

A negative correlation also exists between subsidies and resources (Figure 3). The relationship here is slightly less pronounced, with a correlation coefficient of –0.24. The observed association here is mostly driven by high-resource, low-subsidy countries in the lower right-hand corner of Figure 3, such as the United Kingdom and the United States. Some nations, such as Slovakia and Sweden, can maintain their heavily subsidized higher education systems even though their universities' per-student spending levels exceed 50 percent of per capita GDP. But many of the other heavily subsidized countries have institutions that are under-resourced by international standards; Austria, Denmark, and Iceland all rank in the bottom third of countries on resources.

Well represented at the top of the resources ranking are Anglosphere and East Asian countries, including the United Kingdom (no. 1), the United States (no. 3), and Japan (no. 5). But this high-attainment, low-subsidy group is not uniform on the resources its universities have at their disposal: Canada provides its universities with one of the lowest levels of resources per student, at just 28 percent of GDP per capita. Some countries that became part of the developed world only recently rank in the top third on resources; these nations include Estonia (no. 9) and Latvia (no. 12).

The final comparison left to make in this analysis is between attainment and resources (Figure 4). Although the correlation between these two variables

Figure 4. Attainment vs. Resources



Source: Authors' calculations from Organisation for Economic Co-operation and Development, *Education at a Glance 2018*, 2018, https://www.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en.

is technically negative (–0.01), it is so slight as to make them effectively uncorrelated. That is because high-attainment nations (again, dominated by the Anglosphere and East Asia) are all over the spectrum regarding resources. Australia, Japan, the United Kingdom, and the United States all feature high levels of spending per student (partly by charging relatively high tuition), but Ireland and Korea all achieve high attainment rates despite low spending.

The nations that rank at the bottom of the attainment metric (such as Chile, Germany, and Hungary) tend to have moderate levels of spending. Interestingly, however, the nations that perform worst on the *resources* metric, including Canada, Iceland, and Ireland, actually have quite a high share of tertiary education graduates. This suggests that resources available to colleges are not necessarily the dominant factor in determining how many students earn a degree, though resources available may affect the quality of that degree.

Conclusion

Not all countries have pursued the same goals in their higher education systems. Some countries, such as the United Kingdom and the United States, prefer to have well-resourced and widely accessible universities that charge high tuition. Other nations, such as Austria, Denmark, and Finland, accept lower attainment and resources in exchange for offering free tuition to those who do secure a slot in a

public university. Still others, such as South Korea and Canada, prioritize broad college attainment in lieu of other goals.

Different societies have different values, so it is natural that one country may hold a certain goal in higher regard than another. For instance, American policymakers like to think of higher education as a "path to the middle class" and pursue policies that promote high attainment, even if that means students pay higher prices. But in other nations, the very idea of charging for education may be radical, so higher subsidies are the priority. Of course, these policies are not static and can change over time.

This report does not aim to take a position on which goals the US or any country should prioritize, but rather illustrates that pursuing a certain goal more often than not means a country has to give something else up. That trend often goes unacknowledged. A higher subsidy rate for universities sounds nice, until one considers that it tends to coincide with adverse effects on attainment and resources for universities, even if that was not policymakers' explicit intention. We encourage policymakers to approach higher education policy with these trade-offs in mind, especially when looking abroad for ways to reform the US system. They may decide that the existing strengths of the American higher education system are not worth giving up.

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Appendix

Table A1. All Rankings

Country	Attainment Rank	Resources Rank	Subsidy Rank
Australia	5	10	29
Austria	26	24	5
Belgium	16	18	10
Canada	2	32	28
Chile	33	19	32
Czech Republic	29	27	15
Denmark	15	25	4
Estonia	21	9	18
Finland	25	11	1
France	18	16	14
Germany	31	23	11
Greece	23	35	9
Hungary	32	26	25
Iceland	12	33	6
Ireland	4	34	19
Israel	10	30	26
Italy	34	29	24
Japan	3	5	33
Latvia	24	12	16
Luxembourg	7	6	3
Mexico	35	8	20
Netherlands	14	17	21

New Zealand	19	13	27
Norway	9	14	2
Poland	20	20	12
Portugal	28	15	23
Slovak Republic	27	2	13
Slovenia	17	28	8
South Korea	1	31	30
Spain	22	21	22
Sweden	13	4	7
Switzerland	8	7	—
Turkey	30	22	17
United Kingdom	6	1	34
United States	11	3	31

Note: Green denotes higher rankings; red denotes lower rankings.
Source: Authors' calculations based on Table A2.

Table A2. All Values Behind Rankings

Country	Attainment: Share of Individuals Age 25–34 with Tertiary Education (%)	Resources: Expenditure on Tertiary Educational Institutions per Full-Time Equivalent Student Relative to GDP per Capita (%)	Subsidy: Share of Domestic Expenditure on Tertiary Education from Public Sources (%)
Australia	52.0	42.9	37.8
Austria	40.3	34.9	93.8
Belgium	45.7	38.0	85.4
Canada	60.9	27.7	49.2
Chile	29.9	36.8	32.4
Czech Republic	33.8	32.5	76.7
Denmark	46.6	34.6*	94.7*
Estonia	43.0	44.8	74.8
Finland	41.3	41.8	96.5
France	44.3	39.8	79.3
Germany	31.3	35.4	84.4
Greece	42.5	15.4	86.4
Hungary	30.2	33.6	62.9
Iceland	47.4	26.6	91.5
Ireland	53.5	19.0	73.6
Israel	48.0	30.4	58.4
Italy	26.8	30.8	63.6
Japan	60.4	47.4	32.4
Latvia	41.6	41.5	76.3
Luxembourg	51.4	47.1	95.6
Mexico	22.6	45.1	70.9
Netherlands	46.6	38.9	69.8
New Zealand	44.2	40.5	51.6

Norway	48.3	40.2	96.0
Poland	43.5	36.4	83.0
Portugal	34.0	39.9	64.8
Slovak Republic	35.1	53.7	79.9
Slovenia	44.6	32.4	86.5
South Korea	69.8	28.7	36.1
Spain	42.6	36.2	67.6
Sweden	47.4	50.7	88.3
Switzerland	50.1	45.2*	—
Turkey	31.6	35.6	75.0
United Kingdom	51.6	63.1	25.9
United States	47.8	52.9	35.2

Note: Subsidy rate data for Switzerland are unavailable.
Source: Organisation of Economic Co-operation and Development, *Education at a Glance 2018*, 2018, https://read.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en#page1. Data points marked with an asterisk are sourced from Organisation of Economic Co-operation and Development, *OECD Education at a Glance 2017*, 2017, https://www.oecd-ilibrary.org/education/education-at-a-glance-2017_eag-2017-en.

Notes

1. Organisation of Economic Co-operation and Development, *Education at a Glance 2018*, 2018, https://www.oecd-ilibrary.org/education/education-at-a-glance-2018_eag-2018-en.

2. Occasionally, we supplement the *Education at a Glance 2018* data with data from the prior year's report. See Organisation of Economic Co-operation and Development, *Education at a Glance 2017*, 2017, https://www.oecd-ilibrary.org/education/education-at-a-glance-2017_eag-2017-en.

3. The year of reference is 2017, except for Chile, for which the year of reference is 2015. Data are available at Organisation of Economic Co-operation and Development, "Education at a Glance 2018—Data and Methodology," Indicator A1, Table A1.2, 2018, http://www.oecd.org/education/education-at-a-glance-2018-data-and-methodology.htm.

4. The year of reference is 2015, except for Chile (year of reference 2016), Denmark (year of reference 2014), and Switzerland (year of reference 2014). Our measure of resources available includes spending on research and development. Note that this indicator is only available in the online tables of *Education at a Glance*. Organisation of Economic Co-operation and Development, "Education at a Glance 2018—Data and Methodology," Indicator C1, Table C1.4, 2018, http://www.oecd.org/education/education-at-a-glance-2018-data-and-methodology.htm.

5. The year of reference is 2015, except for Chile (year of reference 2016) and Denmark (year of reference 2014). The indicator is not available for Switzerland, so that nation is excluded from the ranking on this metric. The subsidy rate reflects only the share of *domestic* funding from public sources; we exclude international sources of funding from the denominator. We use the distribution of funding after transfers between sectors, such as student loans. Data are available at Organisation of Economic Co-operation and Development, "Education at a Glance 2018—Data and Methodology," Indicator C3, Table C3.1, 2018, http://www.oecd.org/education/education-at-a-glance-2018-data-and-methodology.htm.

6. Some countries, such as Finland, also have a significant government-dependent private sector in higher education. At "government dependent" private institutions, the state provides direct appropriations and sets tuition rates, which distinguishes them from independent private institutions. We consider government-dependent private institutions as public for the purposes of discussion.

7. Organisation of Economic Co-operation and Development, "Education at a Glance 2018: Finland Country Note," 2018, http://gpseducation.oecd.org/Content/EAGCountryNotes/FIN.pdf.

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12. Organisation of Economic Co-operation and Development, "Unemployment Rates by Education Level," 2019, https://data.oecd.org/unemp/unemployment-rates-by-education-level.htm#indicator-chart.

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16. GDP per capita statistics in this report are collected from Organisation of Economic Co-operation and Development, "Education at a Glance 2018—Data and Methodology," Annex 2, Table X2.1, 2018, http://www.oecd.org/education/education-at-a-glance-2018-data-and-methodology.htm.

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20. Organisation of Economic Co-operation and Development, "Education at a Glance 2018: Luxembourg Country Note," 2018, http://gpseducation.oecd.org/Content/EAGCountryNotes/LUX.pdf.

21. Dominique Abriac et al., *Repères et références statistiques*, Ministére de L'Éducation Nationale et de la Jeunesse, 2018, http://cache.media.education.gouv.fr/file/RERS_2018/28/7/depp-2018-RERS-web_1075287.pdf#pag=155.

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