

## The composition of government spending in select advanced economies

By Erica KING †

**Abstract.** Advanced economies vary significantly in their composition of government spending relative to GDP, from under 20% to over 50%. I examine data on the amount and purpose of government spending in select advanced economies, using 2019 to avoid idiosyncrasies related to the COVID-19 pandemic beginning in 2020. I also offer some remarks regarding the efficiency of public spending. A spreadsheet workbook with data referred to in the text accompanies this paper.

**Keywords.** Public spending; Government spending; Advanced economies.

**JEL.** H11; H50.

### 1. Introduction

High-income countries can have large governments because they have large tax bases per person; the ability to raise revenue fairly efficiently; and good credit, enabling extensive borrowing. Consequently, they have wide freedom in choosing the size of their government. On the other hand, low-income countries are typically constrained by smaller tax bases per person; lower ability to collect taxes; and worse credit, placing a lower ceiling on their borrowing. Except for a few recipients of massive foreign aid, the result is less choice than high-income countries have about how big government can be.

This paper stems from the recognition of varying levels of government spending relative to GDP in high-income countries (referred to as advanced economies hereafter) and aims to form comparisons to determine the effect of differences in spending. To properly contrast government expenditure, this paper solely examines data from 2019, before the COVID-19 pandemic could disrupt historic government spending habits. I use data from the Organization for Economic Co-operation and Development (OECD). The OECD divides government expenditure into ten categories: public services; defense; public order and safety; economic affairs; environmental protection; housing and community amenities; health; recreation, culture, and religion; education; and social protection. This paper will only present data regarding defense, education, social protection, health, and economic affairs in detail. Those five categories are good indicators of varying governmental values while also being the destinations for most government spending. Ranked by the total percentage of GDP globally, general public services and public order each exceed defense. However, due to the unique nature of defense spending reflecting the intent to project power outside national borders, it is an intriguing category for analysis.

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Outcomes are easier to assess for some categories than for others: average longevity can be an indicator of health spending outcomes, but defense spending outcomes are much harder to measure. However, one can roughly gauge the effectiveness of government spending by comparing countries' spending versus indicators of results, which are usually only indirect because of complexity of the processes involved.

### 2. Examination and comparison by category

In the context of advanced economies, it is unrealistic to expect perfect comparisons due to differences in geographic locations, cultures, political situations, and other elements. Nevertheless, I attempt to create reasonable comparisons by analyzing countries that have broadly similar circumstances.

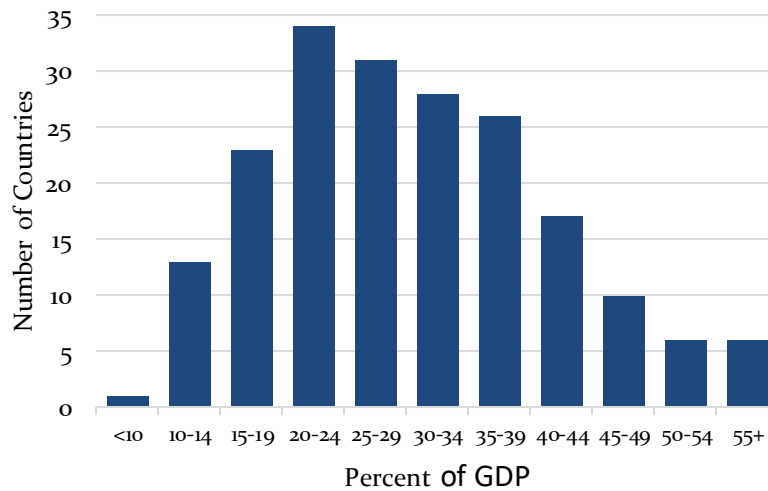
Many observers have theorized that differences in spending primarily reflect variations in the values of governments and citizens. Geographically closer countries with similar cultures are likely to have similar values regarding what the government should prioritize; therefore, such governments would have analogous expenditure breakdowns. Naturally, this theory has limitations, as neighboring jurisdictions may have different political alliances or social circumstances that may set the two apart. In the case of the United States, defense spending as a percentage of GDP is much higher than for Canada and most Western European jurisdictions because the United States is more interested in creating a military footprint beyond its borders. While factors that could affect government spending are endless, this paper examines the outcomes of varying funding in select categories and whether the outcomes reflect such expenditure.

Governments can spend certain sums on specific categories, but higher spending does not necessarily translate to better outcomes. This is the phenomenon of efficiency. In short, the composition of government spending does not directly correlate to societal outcomes as unexpected factors play a determining role.

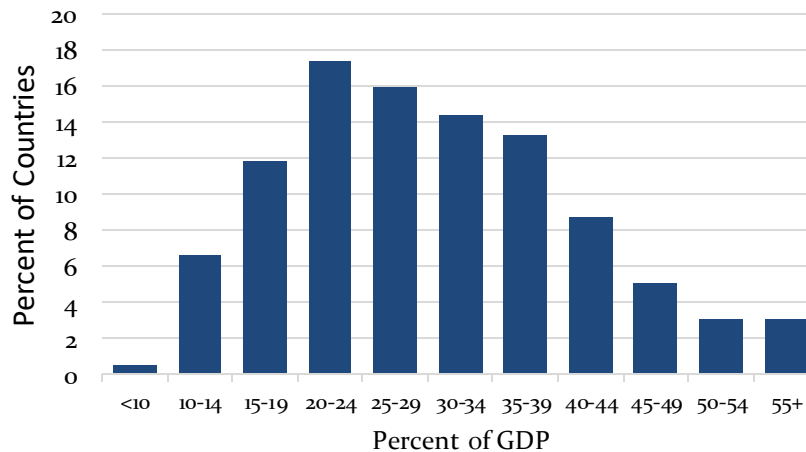
#### 2.1. Total spending as % of GDP

The distribution of government spending for all 196 jurisdictions tracked by the International Monetary Fund (IMF) forms a left-skewed bell curve (Figures 1 and 2). Figures are for general government, which includes national and subnational spending. Somalia, Haiti, Zimbabwe, and Nigeria are among the lowest spenders on the left tail. Singapore is the only advanced economy where government spending is below 15% of GDP. Conversely, advanced economies dominate the right-side highest spenders, alongside a few Pacific Island nations, Kuwait, and Lesotho, all small jurisdictions in the context of this study.

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**Figure 1.** *General Government Spending in All Economies, 2019*  
IMF WEO, April 2023



**Figure 2.** *General Government Spending in All Economies, 2019*  
IMF WEO, April 2023

The difference between advanced economies and all economies is apparent, as the same statistics for the advanced-only group are right-skewed, concentrated in the 35% to 44% of GDP range especially (Figure 3). Among its advanced economy peers, Singapore sits at the bottom, with government spending reaching merely 14.0% of GDP. Asian jurisdictions generally populate the lower percentages: Taiwan (17.3%), Hong Kong SAR (21.0%), Korea (22.6%), and Japan (37.3%) all spend less than 40% of GDP on government. On the other hand, Western European and Scandinavian nations spend the most, with France at 55.4%, followed by Finland (53.3%), Belgium (51.9%), Norway (50.2%), Denmark (49.7%), Austria (48.6%), Italy (48.5%), and Sweden (48.1%). Out of the IMF's ranking of 45 advanced jurisdictions, the United States is the 17<sup>th</sup> lowest-spending, at 36.0%, just under Japan. The initial analysis could point to geographical differences, as rich European nations could share a similar belief in the importance of government spending on societal and economic progress. East Asian jurisdictions could believe in keeping government spending low to avoid crowding out. Or, maybe their

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money spent is just more effective, a concept that will appear in each subsequent category.

As previously mentioned, low-income countries have more constraints on their budgets; therefore, they have less freedom to choose categories for additional expenditure beyond basic levels, such as trying to provide universal primary education. In contrast, high-income countries can more freely decide their spending for specific needs. For countries that place emphasis on spending for a select category, the additional amount is enough to increase their overall expenditure considerably.

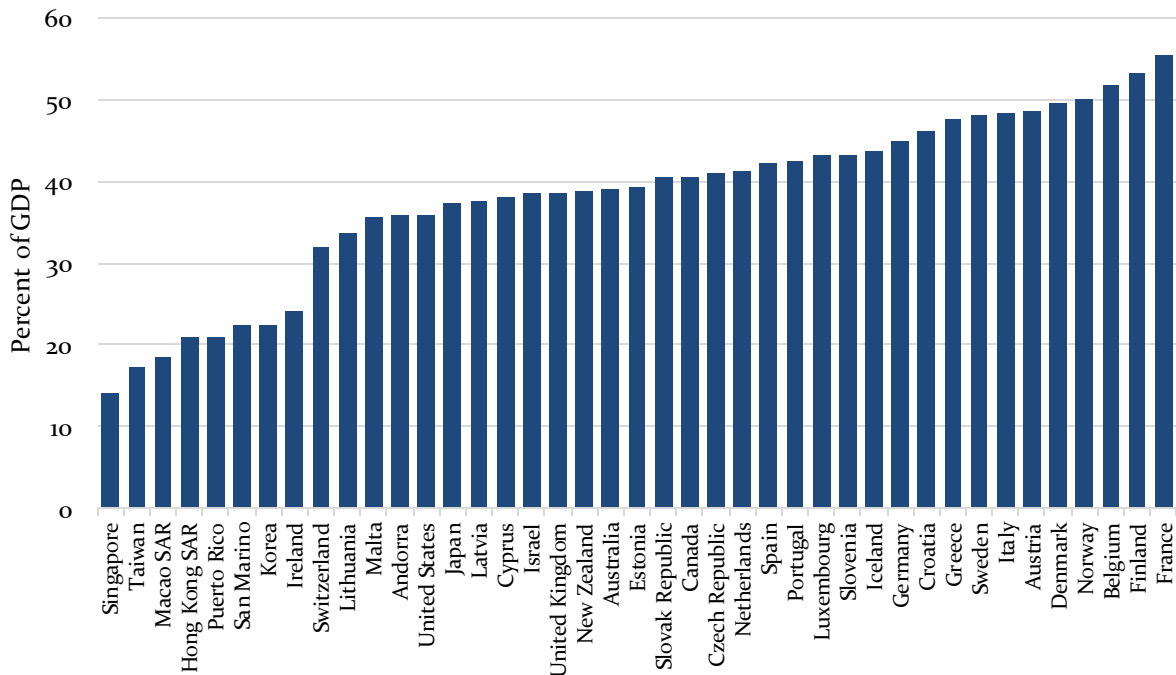


Figure 3. Government Spending of Advanced Economies, 2019  
IMF WEO, April 2023

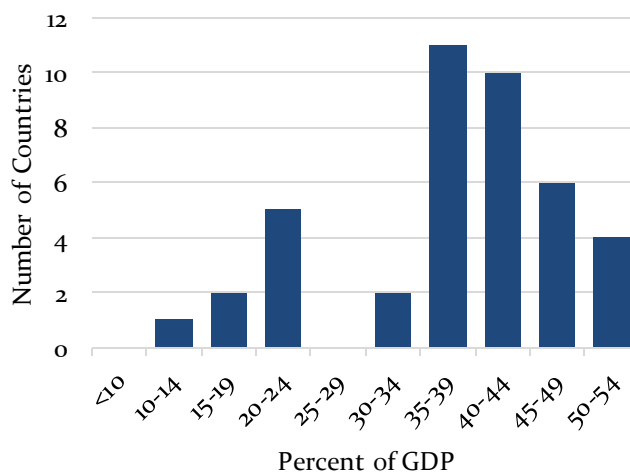
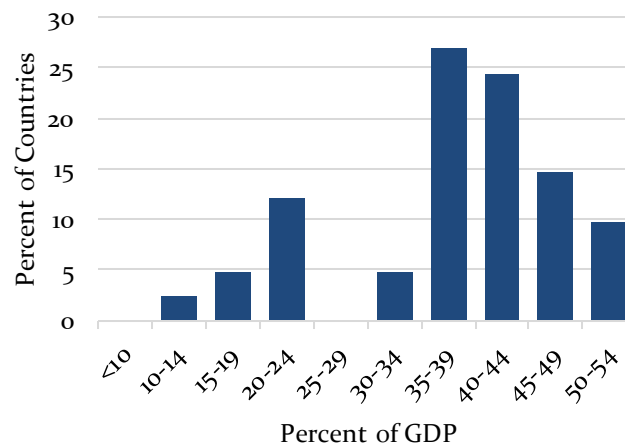


Figure 4A. General Government Spending of Advanced Economies, 2019  
IMF WEO, April 2023

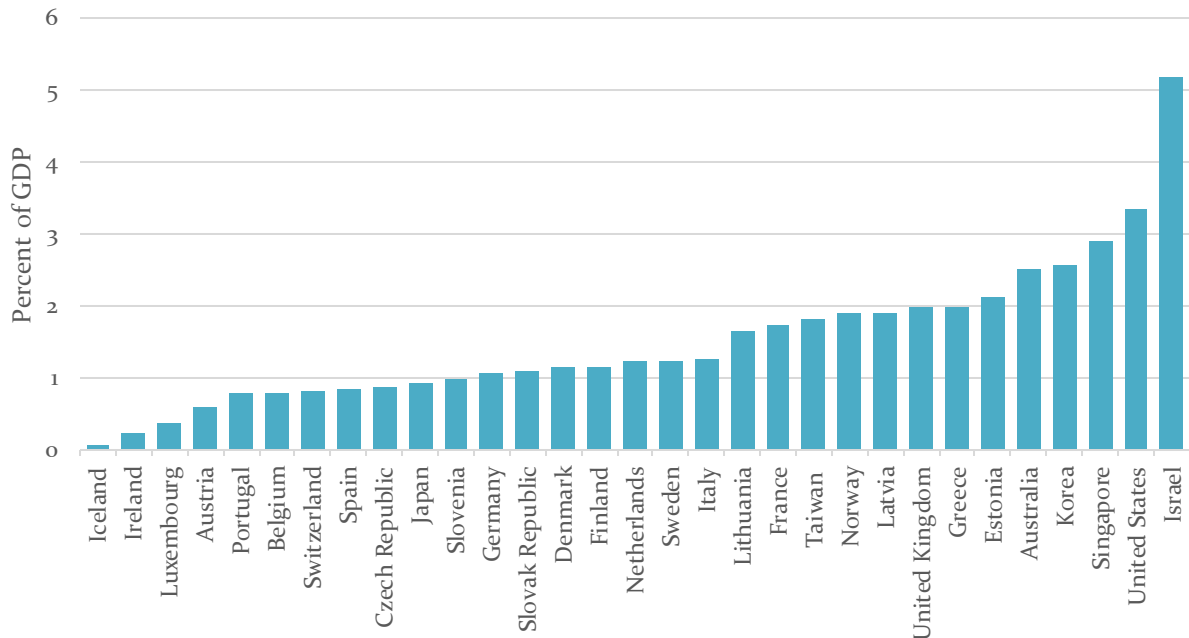
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**Figure 4B.** General Government Spending of Advanced Economies, 2019  
IMF WEO, April 2023

### 2.2. Defense

Let us now use OECD data to analyze major spending categories among advanced economies. Differences in defense spending are more clear-cut compared to other categories since spending is heavily dependent on the government’s concern for military power rather than, for instance, demographics. The idea that there is no set “optimal” spending for any category is especially true for defense spending. One example is the United States, which values projecting its military power beyond its borders. On the contrary, spending 0% of its GDP on military-related matters is Costa Rica (not an advanced economy). The drastic difference between their spending habits can only reflect contrasting values.



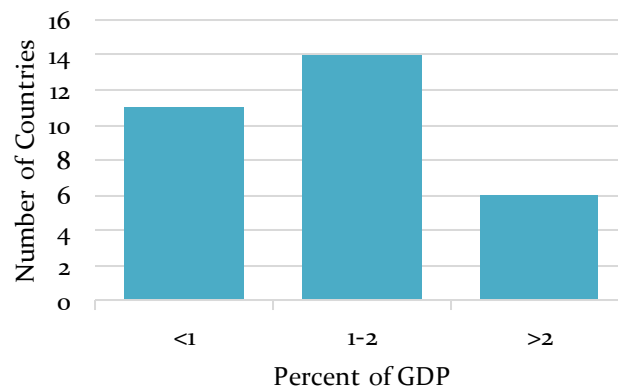
**Figure 5.** Government Spending on Defense, 2019  
OECD, 2023; CIA, 2023

In Figure 5, the two jurisdictions with the lowest spending on defense are islands that were remote from the battlefields of World War II. Iceland and

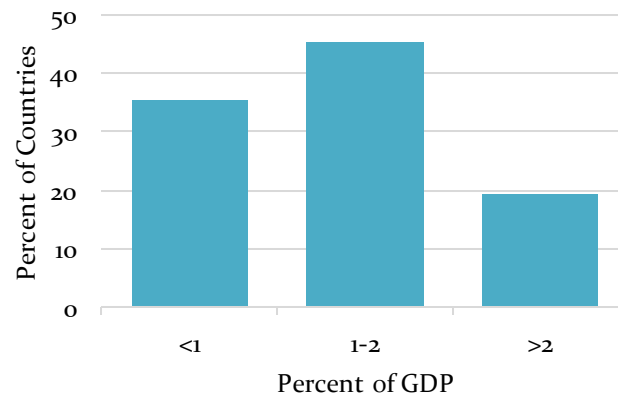
E. King, JEL, 10(3-4), 2023, p.49-65.

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Ireland are members of the North Atlantic Treaty Organization (NATO) but are as unlikely to be invaded in war today. Interestingly, Singapore, known for its neutrality since 1965, is the third-highest spender. When considering its economic affluence and geographic location, it is apparent that the Singaporean government would like its Southeast Asian neighbors to know that it would strongly resist a takeover. Geopolitical pressure to invest in defense also applies to Israel and Korea, both close to their historical enemies (all Israel's neighbors and North Korea, respectively). In contrast, isolated countries such as Iceland and Ireland have sufficient distance from nations threatening their peace; as such, their need to fund a stand-by army decreases.



**Figure 6A.** *Government Spending on Defense (Advanced Economies), 2019*  
OECD, 2023; CIA, 2023



**Figure 6B.** *Government Spending on Defense (Advanced Economies), 2019*  
OECD, 2023; CIA, 2023

As the distribution in Figure 6A and Figure 6B shows, most jurisdictions spend 1-2% of GDP on defense, and those allocating less than the midrange outnumber those above average. Israel is the only advanced economy to spend a higher portion of its GDP on defense than the United States (Figure 5). Israel's geographic location is unique, as it is an advanced economy bordered by often hostile non-advanced jurisdictions in the Middle East. Furthermore, its ongoing conflict with the Palestinians is a major reason for the government's high spending on defense. This starkly contrasts with Costa Rica, which maintains a state of peace with its neighbors and generally relies on its National Police and other public security forces to protect itself from

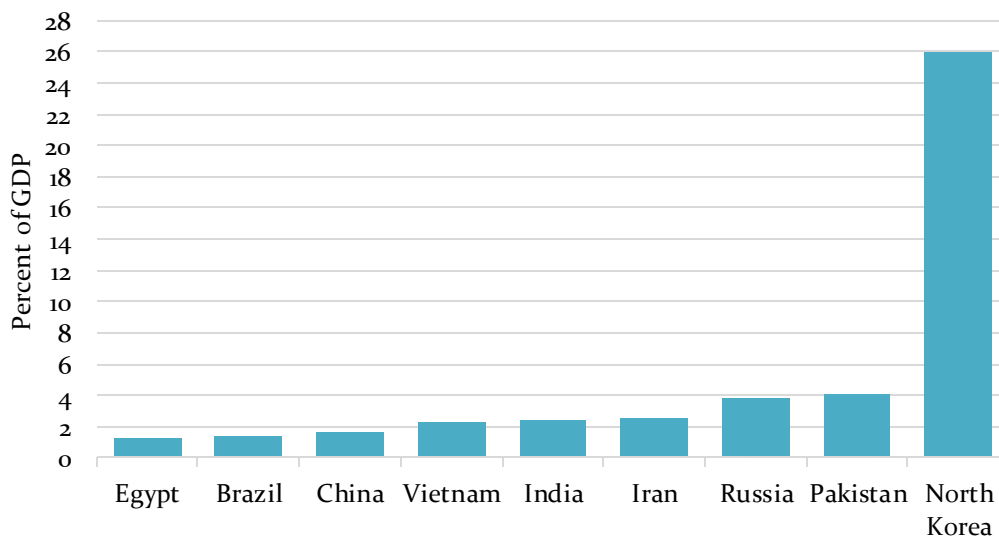
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issues like illegal trade and drug shipments. Similarly, Iceland has no national standing army but devotes its military funding to NATO.

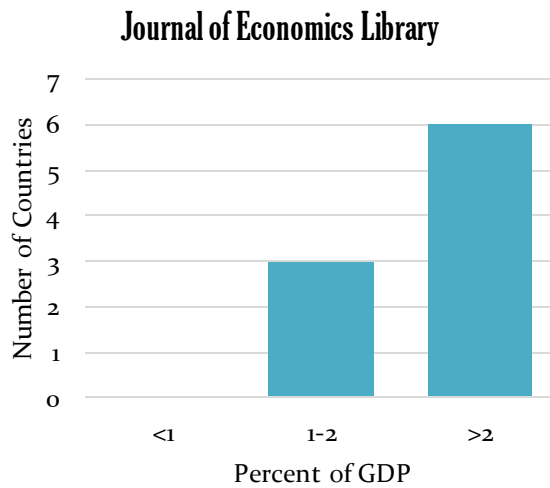
One factor influencing spending is universal military service, mandatory in Israel, Singapore, Korea, Estonia, Greece, Norway, Taiwan, Lithuania, Sweden, Finland, Denmark, Switzerland, and Austria (World Population Review, 2023). Historically neutral jurisdictions such as Sweden and Finland could attribute a fraction of their spending to funding such training as an investment in remaining independent. However, the influence of universal conscription on spending is ambiguous and depends on the political state of each country. For instance, Lithuania likely sits in the upper half of defense spending due to its proximity to Russia and the military preparation that comes with such a geographic location. If the country kept its universal military service but is no longer threatened by its neighbors, its spending on defense could be much less.

Advanced economies' defense spending as a share of GDP is lower than that of many middle- and low-income military powers. Among the major to medium military powers Russia, China, India, Pakistan, Egypt, Iran, Vietnam, Brazil, and North Korea, most spend over 2% of their GDP in this category (Figure 7). The outlier, North Korea, allocates 26% of its GDP for defense. The large number is unsurprising as the government values advancing its military power through nuclear weapons to combat the rest of the world.

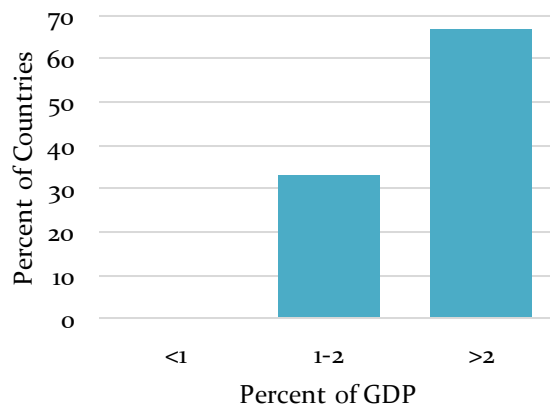


**Figure 7.** *Government Spending on Defense (Non-Advanced Economies), 2019*  
CIA, 2023; Defense News, 2023

Using the same categorical breakdowns as before, distributions in Figure 8A and Figure 8B show that these select non-advanced economies generally spend a greater share of GDP on defense than advanced economies as a group do.



**Figure 8A.** *Government Spending on Defense (Non-Advanced Economies), 2019*  
CIA, 2023; Defense News, 2023



**Figure 8B.** *Government Spending on Defense (Non-Advanced Economies), 2019*  
CIA, 2023; Defense News, 2023

I infer a connection between unrest, low income, and defense spending from the above charts and some historical knowledge. A jurisdiction often involved in wars or prone to civil unrest, such as Russia or Pakistan, dedicates more of its spending to address such issues. For much more peaceful jurisdictions like Brazil and China, their defense spending is on par with advanced economies in the 1% to 2% category. Overall, higher-income jurisdictions are typically more at peace and therefore can spend a small portion of their larger GDP on defense.

Certainly, the array of military situations across the globe helps explain the variability of defense spending. Spending in this category is reliant on a jurisdiction's governmental values. Other factors that could affect spending include political alliances (e.g., NATO), also a governmental factor.

### 2.3. Education

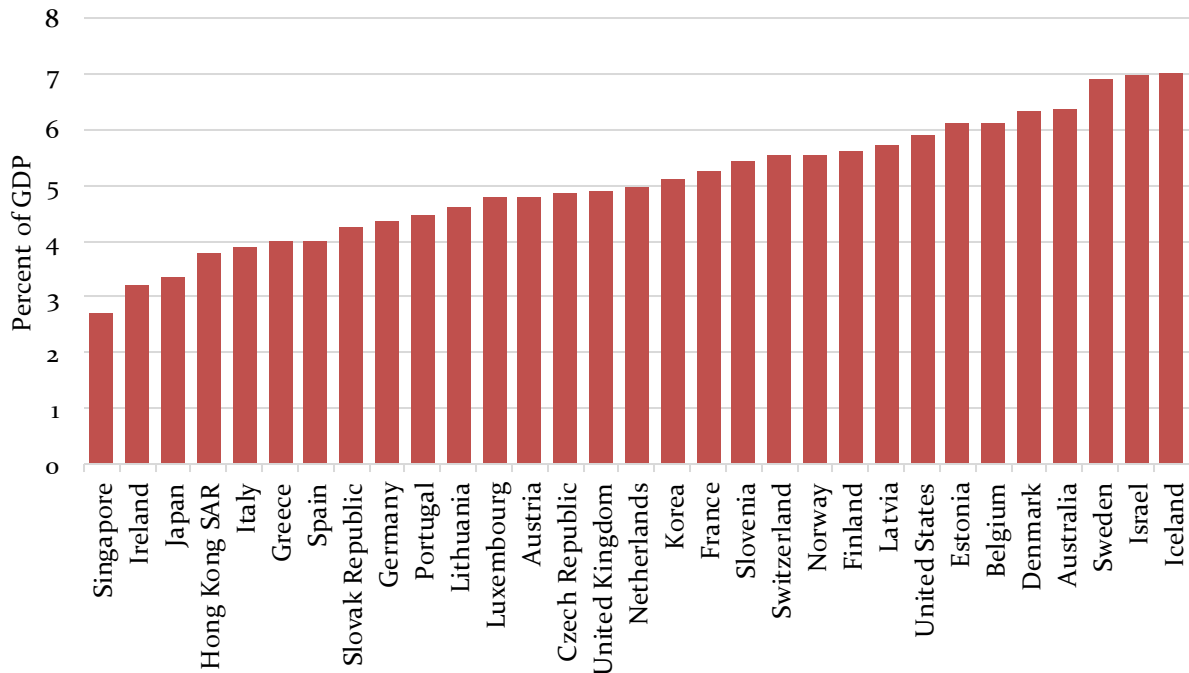
Government expenditure for education reflects the degree to which governments believe that higher spending will correlate to better education outcomes, which governments may value to enhance their labor forces in the future. Educational systems vary widely. For elementary and secondary education, the Netherlands and Sweden have voucher systems that permit



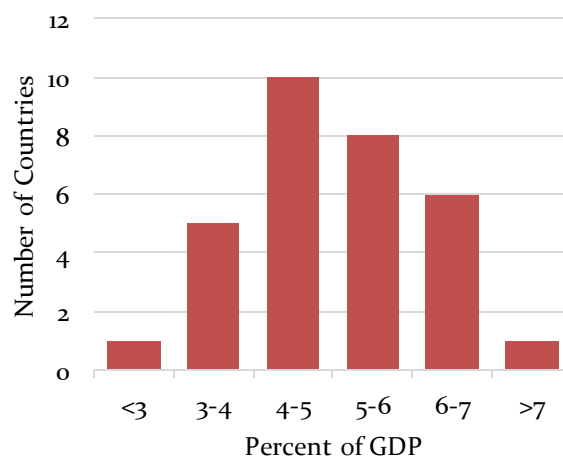
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students to attend private schools without paying extra tuition. In the Netherlands, more than two-thirds of students attend private schools; in Sweden, about one-fifth. As for university education, the United States has, by far, the most diverse system.

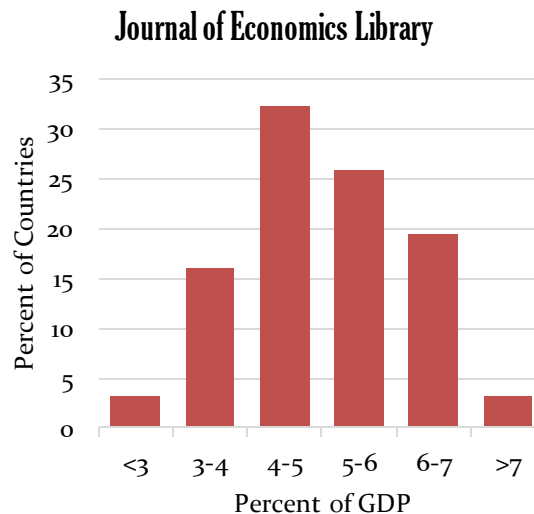
As Figure 9 shows, there are three outliers on the higher end of spending: Sweden, Israel, and Iceland. Each spends around four percentage points more of GDP on education than Singapore, the lowest spender. Ireland and Japan also expend less than half the share of the three highest-spending jurisdictions.



**Figure 9.** *Government Spending on Education (Advanced Economies), 2019*  
OECD, 2023; World Bank, 2023; NCEE, 2023



**Figure 10A.** *Government Spending on Education (Advanced Economies), 2019*  
OECD, 2023; World Bank, 2023; NCEE, 2023



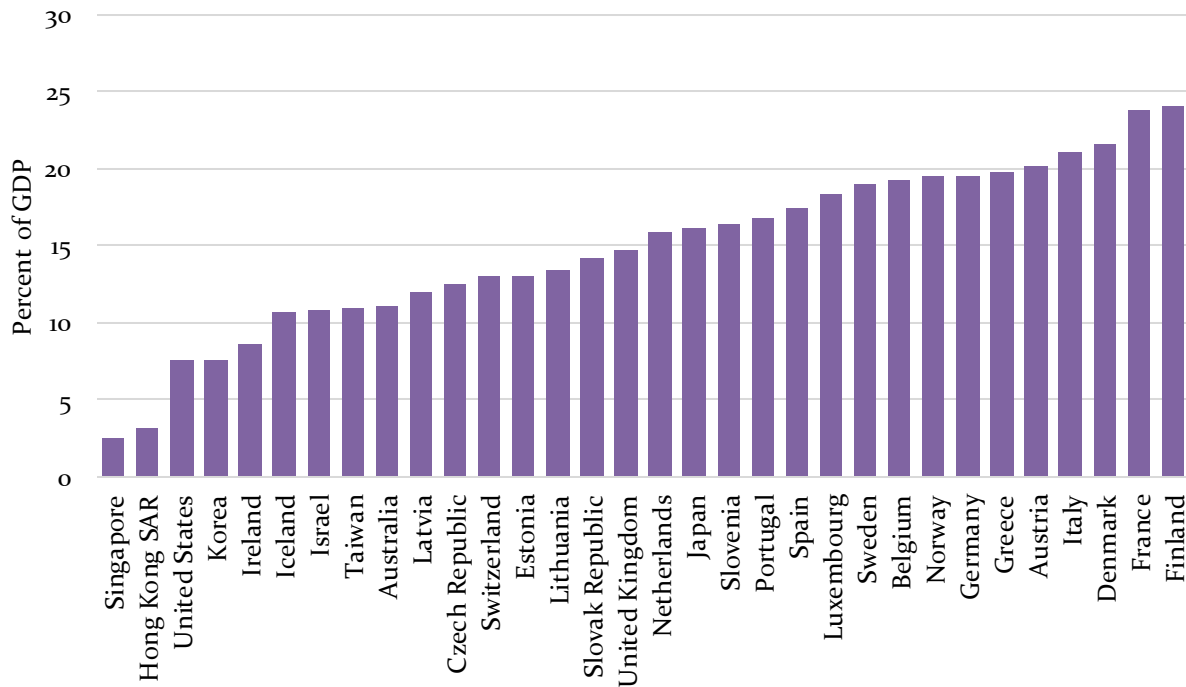
**Figure 10B.** *Government Spending on Education (Advanced Economies), 2019*  
 OECD, 2023; World Bank, 2023; NCEE, 2023

The OECD runs a Programme for International Student Assessment (PISA) to measure reading, mathematics, science, and real-life skills of 15-year-olds. In the most recent questionnaire, distributed in 2018 (and assuming that the jurisdictions' spending in 2018 did not drastically differ from 2019), East Asia (namely China [not an advanced economy], Hong Kong, Macau, and Singapore) dominated the upper ranks (OECD, 2018). Despite spending lower shares of GDP on education, they achieved higher results. Although the data suggest stellar efficiency, it is not the entire story. One-dimensional examination cannot accurately measure education outcomes. Moreover, such assessment measures favor exam-oriented education systems.

Is it safe to assume the converse: that a jurisdiction that spends more of its GDP on education but has lower outcomes is likely to have low efficiency? The answer is no. Denmark and Israel, in the category of between 6% and 7% of spending on education, received below-average scores. Iceland, the top spender at 7%, ranked below all aforementioned jurisdictions. Iceland's primary issue is its low secondary education graduation rate (OECD, 2022). Iceland heavily invests in its education system, but the larger education issue is the outside incentives to drop out. Therefore, spending on education isn't necessarily ineffective; other factors play a more significant role in determining education statistics.

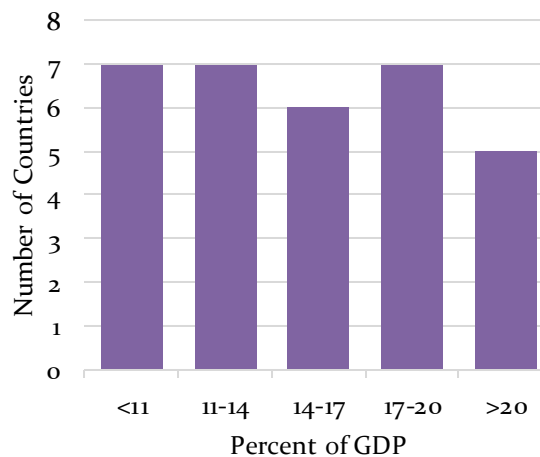
#### 2.4. Social Protection

In contrast to the health category that involves direct spending on healthcare, this category encapsulates spending on "sickness and disability old age; survivors; family and children; unemployment; housing; social exclusion; R&D in social protection and social protection" (OECD, 2023). The United States ranks bottom in social protection spending, while Western European jurisdictions typically populate the higher echelon. As the prime example of a modern *laissez-faire* economy, it is no shock that Hong Kong spends a strikingly low amount on social protection.



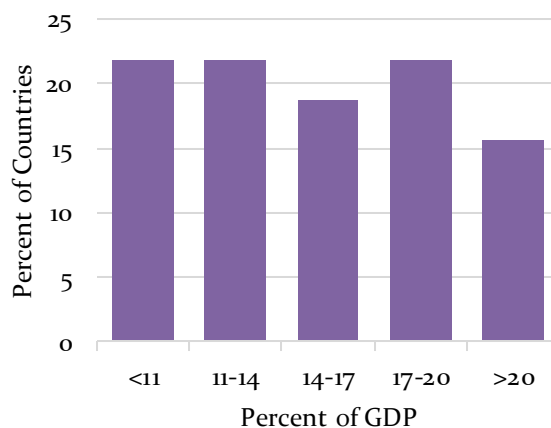
**Figure 11.** Government Spending on Social Protection (Advanced Economies), 2019  
 OECD, 2023; National Statistics Republic of China (Taiwan), 2023; Hong Kong  
 Census and Statistics Department, 2023; MoF Singapore, 2023

As shown in Figure 12A and Figure 12B, the distribution of advanced economies' spending on social protection is generally equal across the buckets used here, with the same number of jurisdictions from 11% to 20% and a similar number both under and over.



**Figure 12A.** Government Spending on Social Protection (Advanced Economies), 2019  
 OECD, 2023; National Statistics Republic of China (Taiwan), 2023; Hong Kong  
 Census and Statistics Department, 2023; MoF Singapore, 2023

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**Figure 12B.** *Government Spending on Social Protection (Advanced Economies), 2019*  
OECD, 2023; National Statistics Republic of China (Taiwan), 2023; Hong Kong  
Census and Statistics Department, 2023; MoF Singapore, 2023

Social protection spending in part reflects governments' attempt at locating an efficient middle ground between unemployment and welfare. Generous unemployment benefits in many European jurisdictions likely constitute a heavy portion of their spending, causing them to spend more on social protection. These European governments emphasize welfare more than preventing frictional unemployment. In contrast, the United States is more parsimonious with social protection programs, offering duller unemployment aid compared to European jurisdictions.

Two traits of a population that could influence spending are average age and level of poverty. For jurisdictions with an older population, such as Japan, the government likely needs to spend more on social protection for the aged. Similarly, jurisdictions with large groups of impoverished citizens (comparatively within other advanced economies) may spend more on food and housing assistance. The outcomes are likely only loosely correlated with spending levels, as there are workarounds with social assistance: selling food stamps and discouraging job search with unemployment benefits.

There is almost a 21% difference between Hong Kong and Finland's social protection spending, a notable difference when compared to extremities in the other categories. This is because the amount of social protection provided is at the government's discretion; compared to education or health, social welfare is less of a necessity for an economy.

It is difficult to gauge effectiveness for social protection spending, as data on adequacy for social insurance and security nets tend to focus on mid- to low-income economies. Furthermore, due to the variety in social welfare programs across different economies, forming a level comparison would require a separate paper. It can perhaps be said that all advanced economies have succeeded in providing sufficient social protection that children, old people, and people with disabilities receive levels of attention and resources greater than those of, say, a generation ago.

### 2.5. Health

The category of health spending includes direct healthcare goods and services. In this category, Switzerland and Singapore stand out as two outliers

on the lower end, checking in at over two percentage points under Latvia, the third-lowest spender.

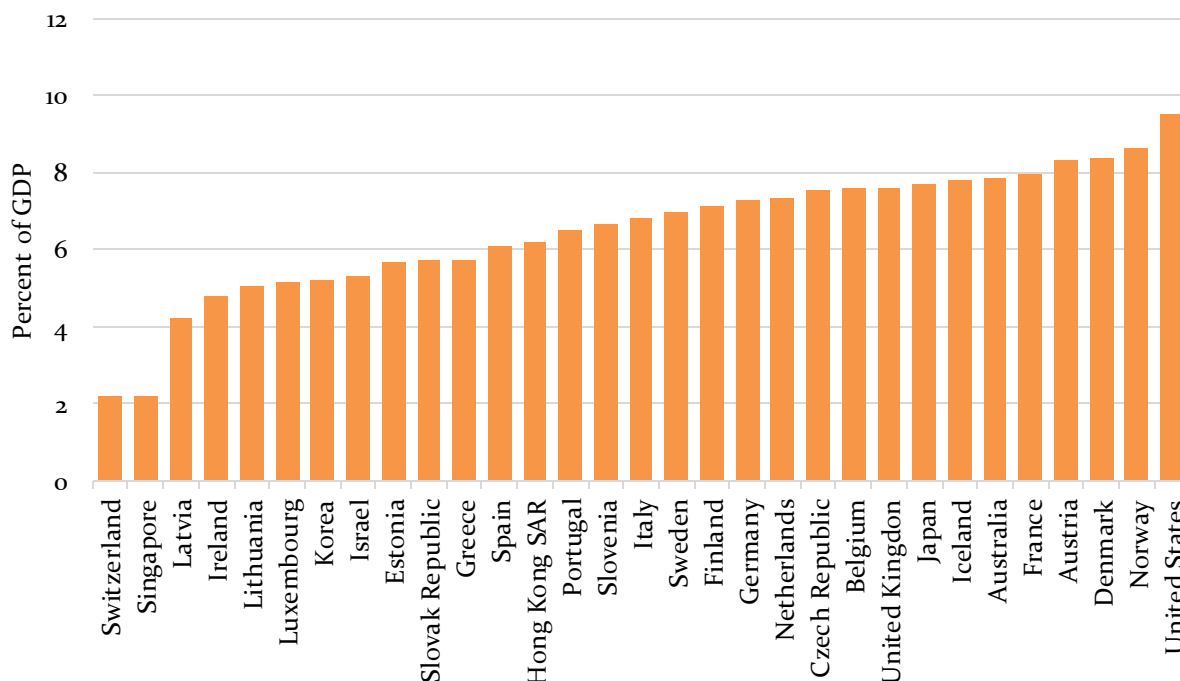


Figure 13. Government Spending on Health (Advanced Economies), 2019  
 OECD, 2023; Hong Kong Health Bureau, 2020; Singapore MOH, 2023

Advanced economies generally spend on the higher end, mostly between 6% to 8% of their GDP (Figure 14). Note that government spending on health does not necessarily exclude spending on private providers. In certain countries, such as the United States, the government finances private hospitals and private insurance programs.

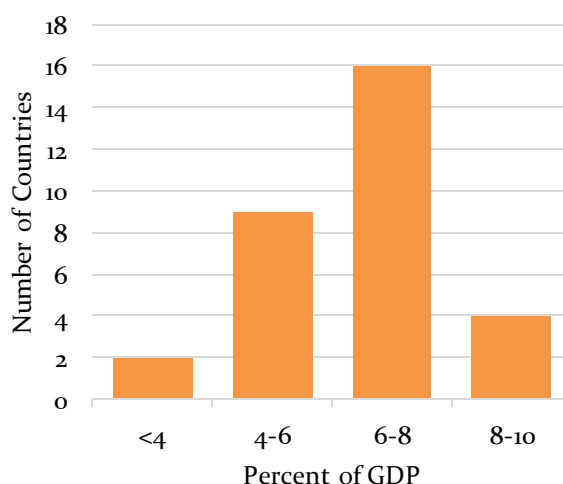
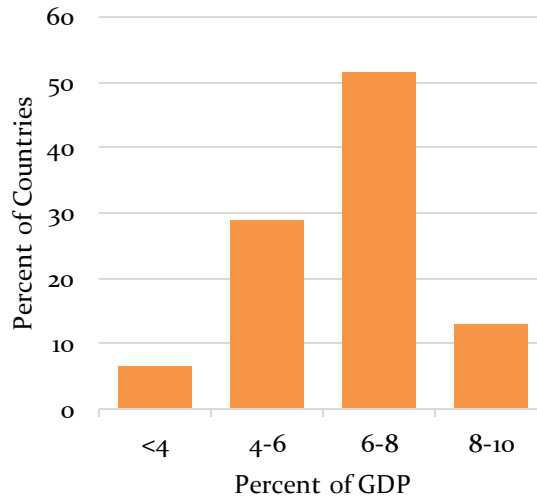
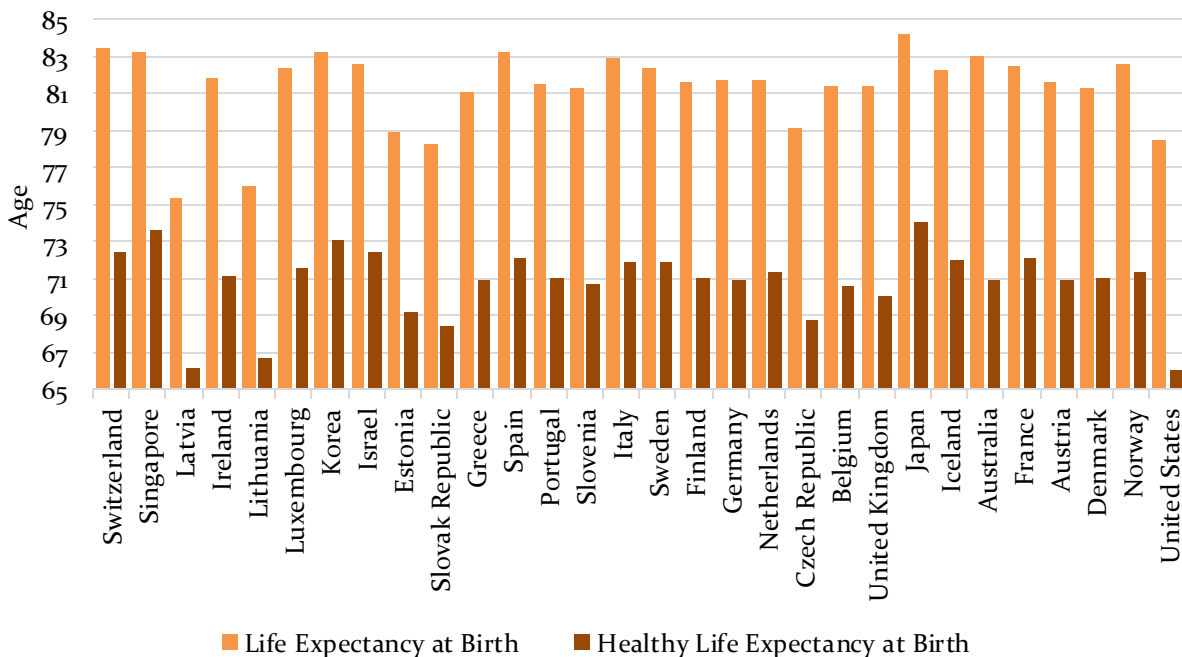


Figure 14A. Government Spending on Health (Advanced Economies), 2019  
 OECD, 2023; Hong Kong Health Bureau, 2020; Singapore MOH, 2023



**Figure 14B.** Government Spending on Health (Advanced Economies), 2019  
 OECD, 2023; Hong Kong Health Bureau, 2020; Singapore MOH, 2023

A rough index to estimate the effectiveness of health spending is life expectancy, as tracked by the World Health Organization. Figure 15 shows life expectancy and healthy life expectancy indexes, from the lowest- to highest-spending advanced economy.



**Figure 15.** Life Expectancy (Advanced Economies), 2019  
 WHO, 2020

There is no obvious correlation between health spending and longevity. Despite spending the highest percentage on health, the United States has one of the lowest healthy life expectancies, whereas Singapore, the second-lowest spender, is near the top in both life expectancy and healthy life expectancy. An economy could spend a large portion on healthcare, but a system with long wait times and a lack of medicines would nevertheless render part of the

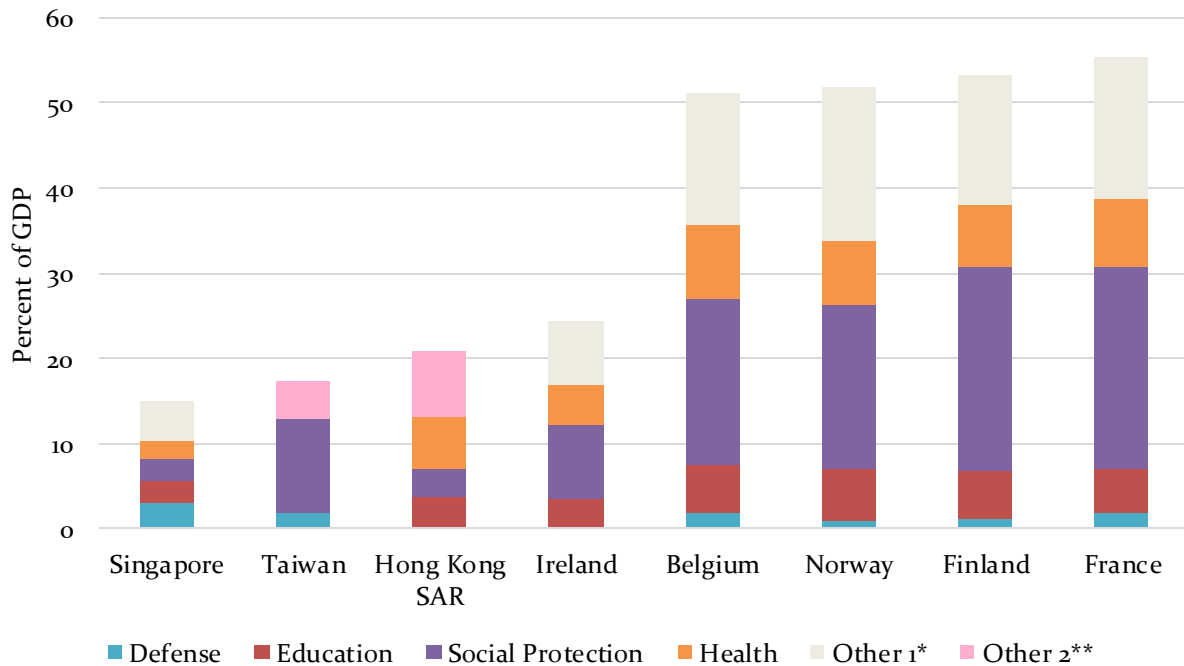
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spending ineffective. The opposite also holds: modest yet efficient spending on healthcare, such as vaccinations, can increase overall life expectancy.

Accordingly, spending in the health category at best only crudely reflects the overall healthcare system of a country. Granted, governments may be spending more to rectify a weak healthcare system, which is a long-term change beyond the scope of this paper.

### 2.6. Categorical Comparison

Figure 18 takes the four highest-spending countries and four lowest-spending OECD jurisdictions to visually compare of government spending across various categories. Note that the overall lowest spenders (Singapore, Taiwan, and Hong Kong) do not contain full category breakdowns and are analyzed differently for consistency. Category “Other 1” shows amount of spending on all other areas besides the four specified categories. Hong Kong and Taiwan do not contain data for all four mentioned categories; therefore, category “Other 2” shows the amount of spending besides the two or three categories that have been previously mentioned in the paper.



**Figure 18.** Government Spending on Various Categories (Select Advanced Economies), 2019 OECD, 2023

Among the eight selected countries, spending on education and the summation of all other categories generally remained constant, implying that governments generally value such internal affairs equally. Reasonably so: education and government regulation spending are standard for breeding future generations of talent and allowing a country to function. Abysmally low spending in either category would seriously compromise economic growth; therefore, no advanced economy is underspending in either department.

Social protection and health spending generally increase with the overall percentage of GDP spent. One can deduce that, in general, governments will increase their spending for welfare, unemployment benefits, and other

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healthcare aid for their citizens. So with the aforementioned categories being relatively constant across various spending levels, the increase in spending on social protection and health would surely lead to higher government spending overall, regardless of an economy's intent behind its spending.

Defense spending generally constitutes a minuscule portion of overall government expenditure and appears uncorrelated to the amount of spending, as Korea is the highest spender of the group on defense but one of the lowest spenders overall. As previously mentioned, defense is a unique category as it predominantly relies on a government's specific military goals and their country's geopolitical situation. Located on the same peninsula as its enemy, Korea would reasonably need to spend a higher percentage of its GDP on defense to protect itself against North Korea. On the contrary, Belgium and France are in areas of lesser threat of violence with governments that do not value imperialism, allowing for less spending on defense.

## 7. Conclusion

The wide range of government spending as a share of GDP in advanced economies reflects variations in government values. Although the conscious decision to spend a dedicated portion of the national budget on a category can reflect governmental values, the outcomes reflect additional influential factors. Additional spending on one area does not necessarily correlate to higher performance due to unexpected results and varying levels of efficiency; therefore, it does not make a statement past the government's intention.

The measures of efficiency offered here are intended to start rather than end debate. Efficiency measures for defense are naturally harder to devise than for other categories. (If absence of attack by another country is the measure of success, advanced economies other than Israel have been successful since World War II. Korea was not an advanced economy when the Korean War occurred.) Even in the seemingly easier case of education, assessments may be unable to capture all aspects of educational goals. In such cases, efficiency is considered in the context of each jurisdiction's situation: its laws, systems, and history.

The lack of correlation between government spending and societal outcomes thus indicates that governmental services in high-spending economies are not necessarily better than those in low-spending economies. Regardless of the differences in expenditure, advanced economies generally provide social services on par with each other.

I speculate that since advanced economies take varying paths to social spending yet still reach a similar level of social services, middle-income economies could also take multiple differing paths to readjust their spending as they grow richer. A key takeaway from the analysis in this paper is that government spending only seems weakly related to societal outcomes.

Other economic research papers that closely investigate government expenditures in certain countries, regions, or categories have possible connections to conclusions reached in this paper; however, deeper exploration into specific spending destinations and meta-analysis of numerous indicators of productivity would require a separate paper.



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