An International Perspective on Surface Transportation Funding

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ABSTRACT

For the last decade the United States has faced recurring funding crises in its federal transportation program. The inadequacy and near-insolvency of the Highway Trust Fund (HTF) provides an opportunity for the U.S. to find more effective ways of paying for its surface transportation needs. This paper explores how other countries provide sustainable transportation funding through case studies of five peer nations - the United Kingdom, Australia, Japan, Germany, and Canada. This report examines how each peer country funds surface transportation at the national level, and concludes by identifying lessons that could be applied to the context in the United States.

Keywords: Case studies; Financing; Fuel taxes; Highways; International; Policy; Strategic Planning
INTRODUCTION

The current federal program for funding surface transportation infrastructure in the United States is broken. Since 2008, the U.S. Highway Trust Fund (HTF) has repeatedly been on the brink of insolvency, necessitating five infusions from the U.S. Treasury’s General Fund. Substantial research and analysis has been conducted to identify potential solutions, but each proposed resolution has encountered considerable barriers (I). The funding challenges in the United States raise the question of whether peer countries face similar issues in funding their transportation systems at the national level and what can be learned from their experiences. Given that most of the developed world uses a model that does not dedicate user fee revenues to its transportation needs, this research provides a better sense of how countries fund their surface transportation programs at the national level through case studies of five peer countries. Through this investigation, this paper identifies what peer countries are doing well and what challenges they face, ultimately identifying lessons that could be applied to the United States.

METHODOLOGY

For purposes of this study, the 30 largest democracies in the world in terms of gross domestic product (GDP) were considered as possible case studies. The list was limited to democracies to ensure a comparable government structure to the United States. This included both unitary governments, such as the UK, and federal governments, such as the United States, but was focused on the highest national level of government.

Land area and per capita GDP for each of these countries was compared to ensure similar size and relative economic and infrastructure development. Based on these factors, countries that did not meet a threshold of US$35,000 per capita GDP and an area threshold of 100,000 square km were excluded from further analysis. This left the following nine candidates for initial review: Australia, Canada, the European Union, France, Germany, Japan, Norway, Sweden, and the United Kingdom.

The next step in the case study selection process was to evaluate for each of these ten initial candidates several parameters including form of government, national-level investment in surface transportation, transportation funding mechanisms, major transportation programs, and relevance to the United States. Each country’s rank and overall quality of infrastructure score according to the World Economic Forum’s Global Competitiveness Report were also considered. The results of this review led to the selection of five countries for further study: Australia, Canada, Germany, Japan, and the United Kingdom.

These case studies were selected because they offered geographical variety as well as examples of alternative transportation funding structures. These five nations provide a cross-section of the developed world and each shares some important characteristics with the United States. While no country provides a perfect comparison, analyzing transportation funding policies and outcomes for these five nations provides useful insights for debates over future U.S. policy.

INVESTMENT AT THE NATIONAL LEVEL OF GOVERNMENT

The first question applied to each of the case studies was whether the subject country was able to ensure adequate levels of investment in transportation, as this is thought to be one of the potential risks of moving away from a user-based funding structure. In an effort to determine if any of the select countries were failing to provide adequate funding of the transportation system, this analysis used the World Economic Forum’s (WEF) 2013-2014 Global Competitiveness
Report infrastructure rankings and scores. Though not a complete picture of the state of the infrastructure, it gives an idea of the condition based on public opinion surveys for individual countries. Specifically, WEF asked citizens in 148 countries the following question regarding the quality of their country’s infrastructure:

“How would you assess general infrastructure (e.g., transport, telephony, and energy) in your country [1= extremely underdeveloped—among the worst in the world; 7= extensive and efficient—among the best in the world]?” (2)

This analysis also gathered data on annual national level investment in surface transportation. Consistent and comparable data on total investment on transportation in the select countries was unreliable, so this analysis used national level investment for comparison purposes. National level expenditures demonstrate the relative role that national governments play in funding transportation systems, but are not necessarily indicative of total transportation investment. Sub-level governments and the private sector contribute varying funding roles to overall transportation investment; those numbers are not included in this analysis.

Data from the WEF report, along with data on national fuel taxes, annual national-level investment in surface transportation, and investment per capita, were assembled for each country for purposes of comparison with the United States. Table 1 details each country’s road infrastructure investment, infrastructure rank, and infrastructure score. The countries are arranged based on infrastructure score.

<table>
<thead>
<tr>
<th>Country</th>
<th>Infrastructure Rank (2)</th>
<th>Infrastructure Score</th>
<th>National Gasoline Fuel Tax (US$ per gal)</th>
<th>Annual National Surface Transportation Spending (US$B)</th>
<th>Per Capita National Surface Transportation Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>10</td>
<td>6.2</td>
<td>$3.43</td>
<td>$13.6</td>
<td>$166</td>
</tr>
<tr>
<td>Japan</td>
<td>14</td>
<td>6.0</td>
<td>$2.00</td>
<td>$36.7</td>
<td>$288</td>
</tr>
<tr>
<td>Canada</td>
<td>15</td>
<td>5.8</td>
<td>$0.37</td>
<td>$6.2</td>
<td>$175</td>
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<tr>
<td>United States</td>
<td>19</td>
<td>5.7</td>
<td>$0.18</td>
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<td>$165</td>
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<tr>
<td>United Kingdom</td>
<td>28</td>
<td>5.4</td>
<td>$3.55</td>
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<tr>
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<td>5.2</td>
<td>$1.29</td>
<td>$6.3</td>
<td>$278</td>
</tr>
</tbody>
</table>

The countries included in Table 1 have varied governmental structures. As the United States is a federal system, a substantial portion of U.S. transportation spending is derived from
sub-national governments. On the other hand, some peer nations with centralized governments, such as Japan and the UK, rely on the national government for a significantly larger portion of their country’s transportation investment. Therefore the amount they spend at the national level may not be directly comparable to what is spent at the national level in the other peer nations or the United States.

This table demonstrates that despite being the only included nation with a dedicated user-fee structure, the United States is not investing substantially more at the national level compared to its peers. In fact, these data suggest that at the national level the United States is investing at levels similar to many of its peer nations, but underinvesting relative to others. This implies that the current user-based funding system in the United States does not inherently lead to higher levels of national-level investment compared to other developed nations. It is impossible to know whether national-level investment in transportation would be even lower without the user-pay structure. But it is clear that other national governments, even those with substantial investment at lower levels of government, are managing to at least match, if not exceed, U.S. federal government investment levels.

Also notable is the fact that the United States has the lowest per gallon tax on gasoline of any of the peer countries surveyed, and in most cases the gap between theirs and others is quite large. While there are numerous reasons for this, it is worth considering whether the fact that the United States has treated its gas tax as a user fee to pay for transportation, rather than a tax to compensate for the externalities associated with gasoline consumption, is inhibiting its ability to raise fuel taxes sufficiently to moderate demand and reduce negative externalities.

**CASE STUDIES**

The following sections provide summaries of the national level transportation programs in Australia, Canada, Germany, Japan, and the United Kingdom. It should be noted at the outset that a number of these countries, specifically Australia, Germany, and Japan, are also undergoing some policy shifts within their national transportation programs at the time of this writing.

**Australia**

The Commonwealth of Australia is a federation of six formerly independent British colonies. Governing powers are divided between the federal government and the governments of the six states. The Australian Department of Infrastructure and Regional Development facilitates federal transportation programs and funding, while responsibility for delivering and managing infrastructure assets is under the purview of the states (3).

Federal funding for transportation infrastructure varies from year to year, averaging AU$6.7 billion (US$6.3 billion) annually in recent years (4). The money is distributed through several programs, including some formula-based distributions to sub-national governments, and other programs that target funding to specific projects. Variation in funding is a result of “fluctuations in the funding profile of projects delivered” under the largest transportation capital programs (4). Base levels for several formula grant and smaller programs are relatively consistent from year to year, while lumpy amounts are appropriated when funding is needed for aspects of large projects within the five-year investment program.

The budget for infrastructure investment is typically committed in five-year segments. The federal government commits a certain amount of funding to complete the five-year plan and then creates a “preliminary schedule of major projects” to be delivered over those years (5). In 2013, the Australian government committed AU$60 billion (US$56 billion) toward road, rail,
and public transit projects for the five-year plan that begins in budget year 2014-15 (5). This commitment provides stability to the industry during the development of the program.

Most large-scale capital projects for all transportation modes are funded directly through parliamentary appropriation earmarks based on the five-year plan. These earmarks are different from the traditional earmarks in the United States in that they are partially based on economic analysis conducted by Infrastructure Australia (IA). IA was created as an independent statutory body in 2007 to evaluate infrastructure proposals for transportation, communications, and other large-scale assets (5). Localities, states, and the federal government propose projects to IA and, based on an internal analysis, IA’s board creates a “National Priority List” of projects that are deemed to offer the greatest benefits to the national economy. Parliament consults the National Priority List when it is making decisions about project funding. It can opt to fund projects that are not on IA’s priority list, but these off-list projects are subject to substantial scrutiny (6).

For about 25 percent of its total surface transportation funding (AU$1 billion in budget year 2012-13) the national government uses a “Special Account,” which enjoys a unique appropriation process that allows the Transport Minister to spend the money within the account per his or her discretion (7). Building Australia’s Future is the primary program under this Special Account- it targets investment to priority projects around the country on a mode-neutral basis and operates somewhat outside of direct Parliamentary oversight, though the Minister is also a Member of Parliament.

Other programs are innovative and encourage better performance and local matches. For example, the Roads to Recovery program, with AU$350 million (US$329 million) annually, funds local projects, but in order to receive funds localities must maintain their own expenditures on road projects at or above a certain level as designated by the program (4). The Department suggests this has leveraged more new local revenues than the minimum required. Other programs, such as the safety-focused Black Spots program, with an annual budget of AU$60 million (US$56 million), have minimum requirements for applicants like a benefit-cost ratio greater than 2.0 (4). All other federal transportation programs are subject to performance evaluations to measure progress toward program goals.

Funding for surface transportation programs in Australia is appropriated from general revenues. While Australia’s gas tax revenues have at times been dedicated to transportation investment, they have primarily been (and currently are) applied to the Consolidated Revenue Fund (CRF) (8). Currently the gas tax is levied at a rate of AU$0.38 per liter (US$1.29/gal) and generates approximately AU$15 billion (US$14 billion) in federal revenues (9). Australia also employs private sector investment and toll road systems that are growing in number and size, with at least ten large interoperable systems currently in use (10). Public-private partnerships or “P3s” account for a small but growing portion of transportation procurement and funding, though they are not represented within the federal programs.

Australia’s federal transportation program helps encourage maintenance of the system while providing money for sub-national governments to implement projects that have national or regional scope. The use of legislative earmarks for large projects is kept in check with the use of IA’s National Priority List. Stability for transportation funding is supported through the use of five-year plans, where the federal government commits to funding a program of investments over a five-year period and appropriates the funding annually. Infrastructure Partnerships Australia, an industry trade organization, has called for an increase in the use of direct user fees and highlights the fact that gas tax revenues are greater than transportation investment (11). In
general, however, dedication of fuel tax revenues has not appeared to gain much traction politically.

Canada
Traditionally, Canada’s federal government has played a smaller role in infrastructure funding at the sub-national level than the United States’ federal government. However, since 2007 Parliament has expanded its commitment with several new long-term programs that have increased investment across the country, most recently increasing investment levels in 2013 (12). The federal programs are organized between two primary agencies: Transport Canada and Infrastructure Canada. Transport Canada is primarily involved with transportation regulation, safety, and operations, with a focus on aviation and freight. Infrastructure Canada is responsible for administering the larger federal infrastructure funding programs.

Canada’s Parliament increased investment in 2007 for surface transportation by providing CA$33 billion (US$29 billion) for investment over six years. This represented a significant increase in what had traditionally been a hands-off approach to funding (12). Six years later, the Canadian federal government further increased this funding commitment by budgeting CA$70 billion (US$61.75 billion) over a ten-year period for infrastructure investment (which included a portion of the initial CA$33 billion that had not yet been spent).

Included in this ten-year funding plan is $53 billion to be invested at the sub-national levels of government through the New Building Canada Plan, CA$7 billion (US$6.2 billion) earmarked for infrastructure for First Nations, and $10 billion (US$8.8 billion) for investment in federally-owned assets such as bridges, ports, and roadways on federal lands (13). Overall average annual investment at the federal level through this funding commitment will be CA$7 billion (US$6.18 billion) for the next decade (13).

The New Building Canada Plan, which represents the largest component of the ten year plan consists of three funding programs: the New Building Canada Fund, the Community Improvement Fund, and the P3 Canada Fund, described in this section. Together these three programs contribute approximately CA$4.7 billion (US$4.15 billion) annually to infrastructure investment. Funding for the New Building Canada Plan, as well as the programs included within the CA$70 billion commitment is from the Canadian general fund; federal gas taxes are not dedicated to infrastructure investment.

The New Building Canada Fund is a ten-year, CA$14 billion (US$13 billion), program that distributes funding to provinces for projects of regional and national importance, with an emphasis on economic development (12). This funding is distributed by formula to provinces on a per-capita basis, and provinces must report back to the federal government to demonstrate that funded projects deliver national benefits (13). Eligible projects can include any type of transportation infrastructure as well as water, wastewater, and energy infrastructure.

The Community Improvement Fund is comprised two components: the Federal Gas Tax Fund (which is not funded by and has no connection to gas taxes) and the Goods and Services Tax Rebate. The Federal Gas Tax Fund provides CA$2 billion (US$1.8 billion) per year for infrastructure investment, which is indexed to increase by two percent each year. The Goods and Services Tax Rebate is an earmarked CA$10.8 billion (US$9.6 billion) over ten years for infrastructure investment. Together, these funds will provide CA$32 billion (US$28.3 billion) over ten years by formula to municipalities for infrastructure investment (14). The Canadian government uses these funds to help municipalities maintain and improve their infrastructure assets.
Canada is similar to the United States in that the majority highway network is toll free. However, the P3 Canada Fund has set aside CA$1.25 billion (US$1.1 billion) to encourage P3 procurement, including for use on Canada’s limited number toll roads (15). This funding is distributed on a competitive basis, and can fund up to 25 percent of a P3 project cost. Funding for the P3 fund is from general taxes.

As noted, all federal level infrastructure investment in Canada is from the general fund, but Canada’s federal gas tax is approximately double that of the United States’ - it is currently set at CAS0.10/ liter of gasoline (US$0.37/gallon) (16). Like states in the U.S., Canadian provinces can levy additional gas taxes for their own use. Canada does not tie its fuel taxes to transportation funding at the federal level. Canada has been able to increase funding for its transportation programs significantly in recent years because the Parliament found infrastructure investment to be a priority.

In summary, the Canadian federal government has been able to increase its investment in surface transportation, while leaving most project selection and decision-making to the localities and provinces. Under Canada’s new capital expansion programs, the provinces must select projects that can demonstrate benefits for the national economy, ensuring that national investments have national benefits. None of the federal funds appear to have any modal requirements.

Germany

Though much smaller than the United States in size and population, Germany has a similar federal government structure (17). The federal government is responsible for planning and funding federal roadway and rail infrastructure, but in general it is up to states to construct and operate transportation infrastructure, with the bulk of the transportation money coming from the federal purse (18). The German system, however, differs from the United States in its use of general taxation for transportation investment, and the federal government’s stronger role in transportation planning.

Every 10 to 15 years, the Federal Ministry of Transport Building and Urban Development (BMVBS) creates the Federal Transport Infrastructure Plan (FTIP). This plan identifies federal road, railway, and water infrastructure projects that are calculated to be economically advantageous for the country (19). The federal government then prioritizes and funds these projects through five-year authorizations of funding, which under the current law total more than €10 billion (US$13.6 billion) annually (19). Of this €10 billion, approximately 56 percent is spent on system preservation, 32 percent is spent on system expansion, and the remaining 12 percent is spent on projects to improve system operations (19). While economic analyses are used to prioritize most projects, there is some evidence of political influence in project selection, particularly when it comes to investment in eastern parts of Germany over other areas (20). Other federal programs include several smaller formula distributions to help sub-national governments with operations and maintenance of local roads and public transit operations.

Gasoline is taxed at a significantly higher rate than in the United States. Germany’s gas tax is currently set at €0.67 per liter (US$3.43/gallon) and it generates nearly €18 billion (US$24.5 billion) in annual revenues for the federal government (21). These revenues are not dedicated to transportation funding, even though the total funds collected exceed Germany’s annual overall federal investment in transportation infrastructure.

In 2004, Germany adopted a partial user-pay system by widely implementing truck tolls for the first time on federal highways managed by VIFG, a federally owned government
The toll is a mileage charge that applies specifically to heavy trucks. It ranges from €0.141 to €0.288 (US$0.19 to US$0.39) per kilometer, depending on the vehicle’s emissions category, and generates slightly more than €3 billion (US$4 billion) in annual revenues (23). Initially, these revenues were earmarked for federal roadway, waterway, or railway projects, but since 2011 they have been dedicated to roadway projects only (24).

There are indications that the federal government is increasingly interested in moving toward a user-financed system through the use of mileage fees, but to date private automobiles rarely encounter any tolls (24). While the addition of the toll revenues supplies a steady stream of funding, the use of five-year authorizations likely achieves the same goal in terms of providing long-term funding stability. It is not clear whether the tolls that are in place are on Germany’s highway system are adding to the total budget for transportation projects or are simply substituting for general funds. In either case, revenues from existing truck mileage fees represent about 30 percent of total federal transportation funding.

In general, Germany uses a mix of tolls and general taxes to fund investment in its network of federal roadways, inland waterways, and intercity rail. Based in part on benefit-cost analysis, the federal government creates a national infrastructure investment plan and prioritizes projects for funding around the country. Germany does receive some funding from the European Union through its Trans-European Transport Network program (TEN-T), but these funds are small in comparison with the federal infrastructure budget. Though there is interest, the steps that have been taken toward user-based funding, primarily through the truck mileage fee, are likely to face opposition if an attempt is made to expand them to include automobiles (25).

Japan

As a unitary parliamentary democracy, Japan’s government structure differs from that of the United States in a few key ways. While decentralization reform has been widely implemented in Japan, local jurisdictions are largely dependent on the national government for financial resources. As with other parliamentary systems, the power of the national government is divided between the executive branch (the “Cabinet”) and parliament (the “Diet”). The Cabinet is responsible for running the country and determining how taxes are spent, while the Diet is responsible for legislating and for keeping the Cabinet in check. The Diet designates the Prime Minister who appoints Members of the Cabinet. Japan is further divided into 47 administrative divisions called prefectures, however the central government retains much control.

At the national level, the Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) is responsible for administering transportation policy and programs. Most of Japan’s limited access expressways are tolled; the Japan Expressway Holding and Debt Repayment Agency (JEHDRA) owns the expressway facilities and leases them to private companies for operation (26). The Japanese government owns all of the shares for these agencies and the JEHDRA is responsible for repaying any debts they might hold (26). In addition, Japan has a limited number of free expressways that are directly funded and managed by the national and local governments—these expressways do not charge tolls (27). Japan is also known for its extensive rail network, including its Shinkansen high-speed trains. The majority of this system was constructed prior to the privatization of the railway company in 1987. After privatization, while the system is privately operated, national and local government subsidizes construction of new lines (28).

A recent, relevant development in Japan is the national government’s termination of its version of a highway trust fund and its move towards funding surface transportation through
general revenues. Formerly Japan had funded road investments through a Road Improvement Special Account (RISA) that was similar to the HTF in that its revenues derived from a gasoline tax and other transportation related taxes (29). Like the HTF, the RISA was established as a temporary measure for the express purpose of building a national roadway network and, like the HTF, it lasted longer than originally anticipated or intended.

A set of changing political factors led to the dissolution of the RISA. Electoral reform in 1994 set the stage for a shift in political power away from rural voters and corporate lobbies, who were generally the beneficiaries of the RISA, to the urban voter. This shift made politicians more sensitive to the public opinion of urban voters, who in part felt that transportation funding was not being properly invested (30). Like the HTF in the United States, the RISA received much of its support from specific interests, including construction interests, because it helped to ensure a continual revenue stream (30). In contrast to the situation in the United States, however, some of the Japanese public did not share a positive view of the trust fund, and critics argued that local and national governments alike were spending too much money on unnecessary projects due to the RISA (31).

The alignment of these factors led Japan’s prime minister to “un-hypothecate” transportation related taxes in 2009—that is, to undo the legal requirement that pledged revenues from these taxes for a specific purpose. This effectively meant disbanding the trust fund model (30). Related political tensions resulted in further reform, including the repeal of the gasoline tax in 2011 and its replacement with a carbon tax. The newly implemented carbon tax had the effect of slightly raising the existing tax on gasoline to about US$2.00 per gallon. However, unlike the initial gasoline tax, revenues from this tax are not dedicated to transportation investment (32). In 2010, the gas tax (before its rebranding) brought in ¥2.576 trillion (US$24.7 billion) to the General Fund, while expenditures on public works totaled ¥5.773 trillion (US$55.4 billion) or 1.2 percent of GDP (33).

Prior to these developments, MLIT’s road budget was appropriated through the RISA but remained subject to Japan’s general budgeting requirements, which mandate that outlays be made in the same year that they are appropriated (34). The MLIT’s budget is now appropriated through the General Fund though MLIT continues to funnel money to projects at its discretion (35). For multi-year expenditures, there is a mechanism within the budgeting process, similar to contract authority that allows the government to guarantee longer-term payments (36). MLIT expenditures since the 2008 are detailed in Table 6 (RISA was dissolved in 2009). After an initial drop, funding has stabilized at about $36 billion per year.

Table 6 MLIT Road Budget 2008-2014 (37)

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Dollars (in millions)</th>
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</thead>
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<tr>
<td>2008</td>
<td>55,669</td>
</tr>
<tr>
<td>2009</td>
<td>38,684</td>
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<tr>
<td>2010</td>
<td>31,099</td>
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<td>2013</td>
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<tr>
<td>2014</td>
<td>34,775</td>
</tr>
<tr>
<td>Average</td>
<td>36,706</td>
</tr>
</tbody>
</table>
Through taxes on gasoline, automobiles, and tolls, Japanese drivers typically pay substantially more for their use of transportation infrastructure than drivers in the United States. And since its central government is much stronger, national spending in Japan accounts for a greater proportion of overall transportation investment. While overall investment has decreased since the dissolution of RISA, Japan’s per capita transportation investment at the national level has remained substantially higher than the other countries included in this study.

**United Kingdom**

The UK’s government structure differs from the United States’ in two important ways. First, the UK is a unitary, parliamentary democracy where the national government retains a greater share of power, and responsibility is divided between the executive branch (the “Government”) and Parliament. Second, the UK includes three devolved governments aside from England: Northern Ireland, Scotland, and Wales. These governments have some independence in terms of transportation policy, but are ultimately under the purview of the central government.

The Department for Transport (DfT) is the UK government ministry that is responsible for transportation policy and funding within England. Network Rail, owner and operator of the majority of the rail in the UK, is a government owned strategic company, and operates at an arm’s length from DfT. DfT’s other primary transportation agency, the Highway Agency for English roads, is currently transitioning to become a government owned strategic company like Network Rail. The Highway Agency is responsible for operating, maintaining, and improving England’s “strategic road network,” which accounts for two percent of all English roads (38). It is expected that its budget will be more sustainable within this new company, as its budget will not be subject to the shifting investment needs with DfT.

Central Government funding for surface transportation in the UK totaled approximately £9 billion (US$15.3 billion) in budget year 2012–13 (39). This was matched by slightly more than £8 billion (US$13.8 billion) in funding from the devolved governments of England, Scotland, Wales, and Northern Ireland. Over the past eight years, funding from the Central Government has averaged about £9.3 billion per year. Nearly 50 percent of Central Government funding in recent years has gone to capital improvements in the rail network, including the Crossrail project in the London area (39).

Transportation funds are appropriated every three years through the UK’s budgeting process to DfT (40). Money appropriated to DfT flows to local governments and the devolved governments through several programs, both via formula and discretionary grants. In some cases, funding is distributed directly to Network Rail and the Highway Agency for direct investment in UK’s rail and road infrastructure, respectively. Other programs distribute funds to local governments based on capital investment and maintenance needs on different parts of the transportation system. Typically, some funding is set aside for “Major Schemes,” a mode-neutral discretionary program that provides grants for large projects that are deemed to have national significance. An important element of the Major Schemes program is its use of “value for money” analysis to establish the costs and benefits of proposed projects. To be considered for funding, projects must demonstrate a high value for money. According to the DfT’s Annual Report for 2012–2013, 100 percent of projects executed during that budget term were assessed as having a high or a very high value for money (39).

The UK does not dedicate user fees to fund its national transportation programs. Road users do, however, pay relatively high fuel taxes. These taxes include a percentage-based value-added tax and an excise tax that together equal approximately £3.03 (US$5.15) per gallon. Fuel
taxes are levied nationwide and are deposited into the UK’s Consolidated (general) Fund. In 2011 fuel tax revenues amounted to £26.7 billion (US$45 billion) \((41)\). By comparison, overall public sector expenditures on transportation, at all levels of government, totaled £19.3 billion (US$32.8 billion) in budget year 2012–13; of that total, £8.5 billion (US$14.4 billion) was spent on local and national roads \((41)\). In addition to funding provided at the national level, transportation funding is supplemented at the local level through further general taxes and a few user-based funding mechanisms. In particular, toll-based P3s have been used to fund the M6 Toll Road, while congestion pricing is used in London and helps fund Transport for London (TfL) \((42)\).

The Conservative-Liberal Democrat Coalition Government, which was elected to power in 2010, has introduced substantial reforms to the overall DfT program, including reforms to consolidate grant programs and some small funding cuts to some of the programs \((43)\). But the national government’s approach to transportation funding continues to follow the same general principle of distributing some funds via formula to local transportation agencies while reserving the rest for grants to major projects that can demonstrate significant value for money. This has allowed many large infrastructure projects to receive substantial and sustained funding.

**KEY TAKEAWAYS**

The five countries examined offer valuable lessons, providing examples of approaches for sustainably and effectively funding surface transportation. All of the countries reviewed have established methods for funding their surface transportation programs, without encountering perpetual funding crises. Each case shows ways to help ensure wise long-term investments, as well as the value of using general funds to fund surface transportation programs.

As demonstrated, each country has a method for distributing funding in a way that encourages system preservation. The bulk of these funds are distributed via formula, though in some cases there are more performance measures or economic analysis attached to these funds to ensure wiser investments or increased leverage of local funds. For example, the UK appropriates money via formula and through discretionary programs, but each project is evaluated to have a high VfM. Additionally, each country has demonstrated the ability to ensure long-term investments by either creating a special fund or using multi-year appropriation. This ability is exemplified through Canada’s funding programs, Australia’s Special Account, and the Japanese version of contact authority. The capacity for each of these countries to distribute predictable levels of funding over the long-term provides sub-national governments the ability to maintain and upgrade their surface transportation systems, helping them to compete on the world stage.

For large capital investments, earmarking is prevalent across the selected case studies, demonstrating that elected officials interested in bringing projects back to their districts. This is highlighted through Australia’s use of legislative earmarks and Germany’s political influence in the development of the FTIP. Many of the included countries employ national level planning and economic evaluation, but controls are set in place to ensure that projects that do not meet national goals are not funded. This is again illuminated through the UK’s adherence to VfM, as well as the priority project lists of Germany and Australia.

Importantly, all of these countries fund their national transportation programs through their general government budget, and no taxes are directly dedicated to transportation. Of the countries evaluated, Japan most recently dedicated gas taxes to transportation investment. However, Japanese elected officials found that the public did not support this approach to infrastructure investment because it was not based on actual need. They were therefore able to
un-hypothecate their taxes and now use general funds to support transportation investment without upsetting transportation investment.

These case studies demonstrate that there are functional models in place across the world to fund surface transportation without a trust fund. Each country studied has created a funding system that reliably provides funding for transportation in a politically feasible way. With perpetual funding crises, the United States should consider whether moving to a permanent funding model that emulates the rest of the world would work on American soil.

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