Policy brief

Fuel taxes and electric transportation

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Bridging the fuel tax revenue gap in the move to electric mobility

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Governments worldwide collected US$923 billion in fuel taxes in 2023, revenues at risk with the transition to electric vehicles, especially in lower-income countries. Policymakers should anticipate and assess their own domestic exposure and develop policies to recover enough revenues from electric vehicles as the transition progresses.

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The policy problem

As countries transition rapidly from internal combustion engine vehicles to electric vehicles (EVs), governments face a growing fiscal gap due to vanishing fuel tax revenues. Fuel taxes are currently an important source of government revenue. For low- and lower-middle-income countries, these taxes account for 8–12% of government revenues. Yet, few governments have established replacement tax schemes for a future dominated by EVs. Hence, the accelerating EV transition threatens fiscal stability. High-income countries can offset losses through new or existing policy instruments, for example, carbon pricing, but many developing economies lack the institutional capacity to do so.

The findings

Our analysis estimates that global motor fuel tax revenues amounted to US$923 billion in 2023 (Fig. 1). For comparison, this is approximately US$200 billion more than the global investment into renewable power generation in the same year. Low-income countries collect, on average, more than 9% of total government revenues from fuel taxes — about three times more than high-income countries do. Overall, we find a negative correlation between fuel tax transition exposure and institutional quality. Although the estimates provide a global comparison across 168 countries, they rely on benchmark price assumptions and do not capture subnational variations and/or heterogeneity. Thus, although robust at the global level, country-specific results should be interpreted cautiously and complemented by local fiscal analysis.

The study

To assess the scale and distribution of fiscal risks from the global EV transition, we compiled a dataset covering 168 countries that estimates government revenues from gasoline and diesel taxes. We compared local fuel prices with global benchmark prices to infer how much each government collects — or subsidizes — per litre of fuel. This allows for consistent cross-country comparison even when official data are incomplete or not standardized. We then linked these results with indicators of institutional quality and debt distress to identify countries most vulnerable to revenue loss in a transition from combustion engine cars to EVs. This provides policymakers with an early-warning map of fiscal exposure to fuel tax revenue decline during the transition to EVs.

Recommendations for policy

- Plan for declining fuel tax revenues due to electric vehicle adoption by designing revenue recovery strategies that do not undermine support for electrification.
- Use country-specific assessments of fuel tax exposure and institutional capacity to guide fiscal planning during the energy transition, while considering alternative taxation models, such as distance-based charges.
- International organizations such the World Bank or the United Nations Development Programme should support the development of new tax systems for road vehicles in lower-income countries, ensuring a balance between fiscal needs and social equity and privacy considerations.

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Further reading

1. Noll, B., Schmidt, T. S. & Egli, F. Managing trade-offs between electric vehicle taxation and adoption. *Cell. Rep. Sustain.* **1**, 100130 (2024). **This research provides new projection modelling insights and pertinent policy guidance for policymakers on how to design battery electric vehicle taxation to balance necessary revenue recovery with the transition to low-carbon road transport across five diverse jurisdictions.**

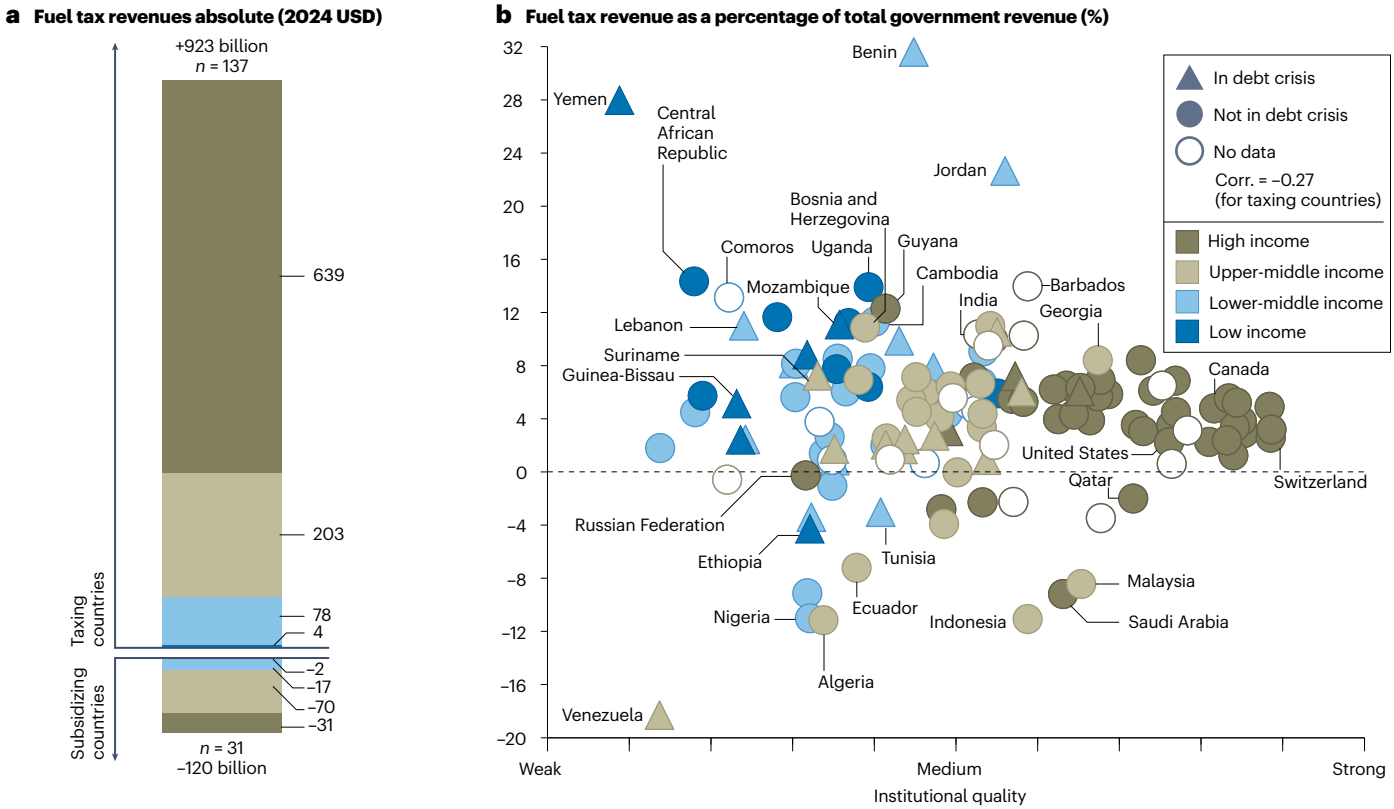

Fig. 1 | Global motor fuel tax transition exposure in absolute terms and country-specific fuel tax transition exposure versus institutional quality. **a**, Bar chart visualizing fuel tax revenues for taxing countries on the positive *y* axis ($n = 137$ countries) and subsidizing countries on the negative *y* axis ($n = 31$ countries). Values are calculated for the year 2023 and shown in 2024 US dollars. Country income levels are grouped according to the World Bank classification. The values of +4 and −2 billion US dollars labels point to the low-income taxing and subsidizing countries, respectively. **b**, Fuel tax revenue exposure, on the *y* axis, is calculated as motor fuel tax revenues as a percentage of total government revenues for the year 2023 ($n = 136$). Institutional quality, on the *x* axis, is assessed per country based on the Worldwide Governance Indicators from the World Bank Group for the year 2023. We find a negative correlation (Pearson coefficient $r = -0.27$ for 115 taxing countries) between fuel tax transition exposure and institutional quality. Figure adapted from B. Noll et al. *Nat. Sustain.* https://doi.org/10.1038/s41893-025-01721-7 (2026), Springer Nature Limited.

2. ITF. *Decarbonisation and the Pricing of Road Transport: Summary and Conclusions* (OECD Publishing, 2023); https://doi.org/10.1787/54809337-en
Addressing the fundamental need for vehicle tax reform caused by drastically declining fuel tax revenues, this OECD/ITF report assesses options for alternative vehicle and road use taxes to efficiently generate revenue and promote a sustainable transport system, drawing on expert discussions and insights from 20 ITF member countries.
3. Davis, L. W. & Sallee, J. M. Should electric vehicle drivers pay a mileage tax? *Environ. Energy Policy Econ.* https://doi.org/10.1086/706793 (2020).
Drawing on newly available, nationally representative microdata for the United States, this work provides an economic efficiency analysis to derive the condition for an optimal electric vehicle mileage tax — balancing driving externalities against incentives for substituting away from gasoline — and empirically quantifies the resulting annual loss of gasoline tax revenue, noting its geographical concentration and regressive distributional impacts.
4. Levis, A., Lichtin, F. & Bernauer, T. Compensating losses in fossil fuel tax revenues: first evidence of public support for a BEV mileage tax. *Transp. Polic.* **171**, 359–369 (2025).
Leveraging the first experimental empirical evidence from a choice experiment conducted with a representative sample of the adult population in Switzerland ($n = 3,283$), this study reveals that a battery electric vehicle mileage tax could achieve majority public support, emphasizing that policy design choices — such as adjusting for vehicle weight and power — are crucial for political feasibility in compensating for declining fossil fuel tax revenues.

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Author contributions
B.N., T.S.S. and F.E. contributed to the conceptualization, writing and editing of the work. B.N. conducted data collection and visualization.

Competing interests
The authors declare no competing interests.