



# Partnership for Carbon Accounting Financials

Enabling financial institutions to measure emissions associated with financial activities



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**Findings on the calculation of total costs of ownership insurance premium for personal motor lines (2023)**

# Methodology for the findings on the cost of insurance (in %) of motor vehicles in countries globally using the CPI weights

## Overall approach

- The PCAF Secretariat has calculated the following global average total cost of ownership for personal car insurance on behalf of the PCAF Insurance-Associated Emissions Motor Working Group.
- It was decided to use **consumer price index (CPI)** data as the basis for the calculation, as this is reliable, publicly available for many countries and the approach to calculate the data is consistent for greater comparability.
- For all countries highlighted, data on the **weights** of the **CPI** was used to determine the percentage cost of insurance.
- The weights reflect the **relative importance** of the goods as measured by their shares in the total consumption of households.
- For **countries** from the **European Union**, data on the harmonized CPI were obtained from **Eurostat** if not otherwise indicated.
- For **all other** countries, data on the CPI weighting pattern was found on the respective **national bureau of statistics**.
- Research tried to include the **highest quality** and **most recent data**. Depending on its accessibility, some sources may deviate in their base year or publication date.
- Only **publicly available** information was used for this research.

## Total cost of ownership

- **Vehicle depreciation costs**
- **Fuel costs**
- **Insurance premiums<sup>1</sup>**
- **Maintenance**
- **Registration/taxes**
- **Other - Parking, tolls, etc.**

<sup>1</sup> Re/insurance premium is defined as gross written premium (the total amount to be paid by the insured to the re/insurer for the policy written in the period) minus external acquisition cost (e.g., agent feed).

## Classification of Individual Consumption by Purpose (COICOP)

- Ideal COICOP used to determine insurance premium, when available:
  - **07.1.1** Purchase of motor cars
  - **07.2** Operation of personal transport equipment (incl. fuel costs, maintenance, tolls, etc.)
  - **12.5.4.1** Motor vehicle insurance

# Limitations of consumer price index (CPI) data

There are some limitations with using a CPI data based Global weighted average as equal to the (Industry) Attribution factor

- CPI weighting reflects relative spending.
- Not every country has the same definition of insurance premium as part of CPI data. Some use the gross premium (e.g., Eurostat, United States of America), others use their own definition of net premium (e.g., United Kingdom) and some might provide no further definition.
- Please find here more information on the net premium (insurance premium less claims) as described for the [Consumer price inflation, updating weights - Office for National Statistics](#) of the United Kingdom (as an example):  
«Firstly, when calculating the CPIH and CPI weights for insurance (such as insurance connected with the dwelling, travel, health and transport) an average of the most recent three years' expenditure is used in line with international recommendations. As insurance expenditure is recorded on a net basis (the difference between expenditure on insurance premiums and the amount paid out in claims) this approach safeguards against exceptional cases where the amount paid out in claims could exceed the amount paid in premiums.»
- If a re/insurer has to calculate an (individual) attribution factor, the PCAF Secretariat recommends to use gross insurance premium data.
- Changes to the non-claims element of motor insurance has a disproportionate impact on the attribution factor calculated.
- This could introduce volatility to the calculated attribution factors, undermining emission reductions.
- Some of these issues could be addressed in future versions of the [PCAF Standard Part C: Insurance-Associated Emissions](#).

# Global average insurance premium considering the individual market shares

Country	% cost of insurance
Global weighted average = (Industry) Attribution factor	6.99%

- PCAF proposes to use the **Global weighted average = (Industry) Attribution factor**.
- The different national and regional CPI weights in the annex of this presentation highlight how different these can be. They serve the sole purpose of information.
- **Disclaimer:** In markets where risk carriers are unable to use the PCAF provided total cost of ownership attribution factor, re/insurers are able to follow the methodology from the [PCAF Standard Part C](#) to calculate their own attribution factor value based on the total cost of ownership approach. They will provide PCAF with details of sources used for the calculation.
- They should use the guidance from the [PCAF Standard Part C: Insurance-Associated Emissions](#) to calculate an **(Individual) Attribution factor**. These national attribution factors could also be calculated by respective insurance associations.
- For guidance on how to calculate the **(Individual) Attribution factor** please consult the sub-chapter «Methodology for re/insurer calculation of total cost of ownership attribution factor» on pages 45 and 46 in the [PCAF Standard Part C: Insurance-Associated Emissions](#).



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**Annex**





**Regional CPI  
weights**

# Advanced EMEA

Country	% cost of insurance
Austria	7.71%
Belgium	11.09%
Denmark	4.45%
Finland	8.50%
France	5.89%
Germany	6.09%
Greece	6.35%
Ireland	2.05%
Italy	8.87%

Country	% cost of insurance
Luxembourg	7.44%
Netherlands	5.12%
Norway <sup>1</sup>	3.46%
Portugal	7.18%
Spain	5.33%
Sweden	5.83%
Switzerland	6.10%
United Kingdom <sup>1</sup>	2.47%
<b>Regional average</b>	<b>6.11%</b>

<sup>1</sup>No Data on HCPI weights at Eurostat, instead country-level CPI weights were used

# Central and Eastern Europe

Country	% cost of insurance
Czech Republic	4.86%
Hungary	2.57%
Poland	4.39%
Slovakia	6.08%
<b>Regional average</b>	<b>4.48%</b>

# Middle East and Turkey

Country	% cost of insurance
Saudi Arabia	3.30%
Turkey	2.08%
<b>Regional average</b>	<b>2.69%</b>

# North America

Country	% cost of insurance
Canada	12.60%
United States	10.53%
<b>Regional average</b>	<b>11.57%</b>

# Latin America

Country	% cost of insurance
Argentina	3.23%
Brazil <sup>1</sup>	4.89%
Chile	6.63%
Colombia <sup>1</sup>	5.33%
Mexico	2.32%
<b>Regional average</b>	<b>4.48%</b>

<sup>1</sup>Didn't have subcategory «motor vehicle insurance». Instead used «insurance».

# Advanced and Developing APAC

Country	% cost of insurance
Australia	9.83%
Japan	6.51%
Malaysia	8.72%
New Zealand	6.27%
South Korea	4.37%
Taiwan, China <sup>1</sup>	2.83%
<b>Regional average</b>	<b>6.68%</b>

<sup>1</sup>Didn't have subcategory «motor vehicle insurance». Instead used «property and casualty Insurance».



**Data sources**

# Sources

Name of the source	Link
Eurostat	<a href="#">Source</a>
CPI Methodology	<a href="#">Source</a>
Argentina National Bureau of Statistics (NBS)	<a href="#">Source</a>
Australia NBS	<a href="#">Source</a>
Brazil NBS	<a href="#">Source</a>
Canada NBS	<a href="#">Source</a>
Chile NBS	<a href="#">Source</a>
Colombia NBS	<a href="#">Source</a>
Japan NBS	<a href="#">Source</a>
South Korea NBS	<a href="#">Source</a>
Mexico NBS	<a href="#">Source</a>
Norway NBS	<a href="#">Source</a>
New Zealand NBS	<a href="#">Source</a>
Saudi Arabia NBS	<a href="#">Source</a>
Turkey NBS	<a href="#">Source</a>
Taiwan NBS	<a href="#">Source</a>
United States NBS	<a href="#">Source</a>
South Africa NBS	<a href="#">Source</a>

# List of countries which PCAF tried to consider for calculating the global attribution factor, determined by their global market share for motor vehicles

Proposed country selection	Sum of share 2022	Data availability
<b>North America</b>	<b>43%</b>	
United States	39%	Yes
Canada	4%	Yes
<b>Advanced EMEA</b>	<b>20%</b>	
Germany	4%	Yes
France	3%	Yes
United Kingdom	3%	Yes
Italy	2%	Yes
Spain	2%	Yes
Switzerland	<1%	Yes
Netherlands	<1%	Yes
Belgium	<1%	Yes
Israel	<1%	No
Austria	<1%	Yes
Sweden	<1%	Yes
Norway	<1%	Yes
Ireland	<1%	Yes
Denmark	<1%	Yes
Finland	<1%	Yes
Portugal	<1%	Yes
Luxembourg	<1%	Yes
Greece	<1%	Yes
<b>Emerging Asia</b>	<b>17%</b>	
China	15%	No
India	1%	No
Thailand	<1%	No
Malaysia	<1%	Yes
Indonesia	<1%	No
Vietnam	<1%	No

Proposed country selection	Sum of share 2022	Data availability
<b>Advanced APAC</b>	<b>10%</b>	
Japan	5%	Yes
South Korea	2%	Yes
Australia	2%	Yes
Taiwan, China	<1%	Yes
New Zealand	<1%	Yes
Singapore	<1%	No
<b>Latin America</b>	<b>3%</b>	
Brazil	1%	Yes
Argentina	<1%	Yes
Mexico	<1%	Yes
Colombia	<1%	Yes
Chile	<1%	Yes
<b>Central &amp; Eastern Europe</b>	<b>1%</b>	
Poland	<1%	Yes
Czech Republic	<1%	Yes
Hungary	<1%	Yes
Slovakia	<1%	Yes
<b>Middle East and Turkey</b>	<b>1%</b>	
Turkey	<1%	Yes
Saudi Arabia	<1%	Yes
United Arab Emirates	<1%	No
<b>Africa</b>	<b>&lt;1%</b>	
South Africa	<1%	Yes
Kenya	<1%	No
<b>Grand Total</b>	<b>95%</b>	

■ CPI weights  
■ Harmonized CPI weights

The percentages have been rounded