

Appendix A: Supplementary Material

Table 1: Mean Consumption Expenditure per Household in Spain, 2022

| Category | Mean Expenditure (€) | Structure (%) | Annual Rate (%) | Annual Difference (€) |
|----------------------------------|----------------------|---------------|-----------------|-----------------------|
| Total | 31568 | 100.0 | 7.9 | 2324 |
| Food and non-alcoholic beverages | 5050 | 16.0 | 5.1 | 244 |
| Alcoholic beverages and tobacco | 481 | 1.5 | −3.0 | −15 |
| Clothing and footwear | 1232 | 3.9 | 6.5 | 76 |
| Housing, water, electricity, gas | 10243 | 32.4 | 3.5 | 350 |
| Furnishings and maintenance | 1296 | 4.1 | 0.8 | 10 |
| Health | 1228 | 3.9 | 2.1 | 25 |
| Transport | 3794 | 12.0 | 17.5 | 564 |
| Communications | 925 | 2.9 | −1.3 | −12 |
| Recreation and culture | 1534 | 4.9 | 18.0 | 241 |
| Education | 468 | 1.5 | 6.4 | 29 |
| Restaurants and hotels | 2953 | 9.4 | 29.1 | 665 |
| Miscellaneous goods and services | 2364 | 7.5 | 7.5 | 148 |

Table 2: Spend-Based Emission Factors (EXIOBASE via Climatiq.io)

| Category | Emission Factor (kg CO ₂ e/€) |
|-------------------------------------|--|
| Housing, water, electricity, gas | 0.30 |
| Food and non-alcoholic beverages | 0.48 |
| Transport | 0.40 |
| Other goods and services | 0.18 |
| Recreation and culture | 0.20 |
| Restaurants and hotels | 0.45 |
| Furnishings and household equipment | 0.25 |
| Health | 0.20 |
| Alcoholic beverages and tobacco | 0.42 |
| Clothing and footwear | 0.25 |
| Communications | 0.15 |
| Education | 0.15 |

Table 3: Household expenditure and carbon footprint by category for France (2021, Eurostat).

| Category | EF (kg CO ₂ /€) | France (%) | France (€ bn) | Emissions (Mt CO ₂ e) |
|-----------------------------------|----------------------------|------------|---------------|----------------------------------|
| Housing, water, electricity, gas | 0.30 | 27.6 | 364.9 | 109.5 |
| Food + non-alcoholic beverages | 0.48 | 13.9 | 183.8 | 88.2 |
| Transport | 0.40 | 12.6 | 166.6 | 66.6 |
| Other goods + services | 0.18 | 12.5 | 165.3 | 29.8 |
| Recreation + culture | 0.20 | 7.7 | 101.8 | 20.4 |
| Restaurants + hotels | 0.45 | 6.2 | 82.8 | 37.3 |
| Furnishings + household equipment | 0.25 | 4.9 | 64.8 | 16.2 |
| Health | 0.20 | 4.2 | 55.5 | 11.1 |
| Alcohol + tobacco | 0.42 | 4.1 | 54.2 | 22.8 |
| Clothing + footwear | 0.25 | 3.3 | 43.6 | 10.9 |
| Communications | 0.15 | 2.5 | 33.1 | 5.0 |
| Education | 0.15 | 0.5 | 6.6 | 1.0 |
| TOTAL | | 100.0 | 1323.0 | 419.5 |

Table 4: Household expenditure and carbon footprint by category for Spain (2021, Eurostat).

| Category | EF (kg CO ₂ /€) | Spain (%) | Spain (€ bn) | Emissions (Mt CO ₂ e) |
|-----------------------------------|----------------------------|-----------|--------------|----------------------------------|
| Housing, water, electricity, gas | 0.30 | 24.30 | 168.0 | 50.4 |
| Food + non-alcoholic beverages | 0.48 | 14.20 | 98.1 | 47.1 |
| Transport | 0.40 | 11.00 | 76.0 | 30.4 |
| Other goods + services | 0.18 | 10.30 | 71.2 | 12.8 |
| Recreation + culture | 0.20 | 6.60 | 45.6 | 9.1 |
| Restaurants + hotels | 0.45 | 12.00 | 82.9 | 37.3 |
| Furnishings + household equipment | 0.25 | 4.90 | 33.9 | 8.5 |
| Health | 0.20 | 4.40 | 30.4 | 6.1 |
| Alcohol + tobacco | 0.42 | 4.40 | 30.4 | 12.8 |
| Clothing + footwear | 0.25 | 3.50 | 24.2 | 6.0 |
| Communications | 0.15 | 2.70 | 18.7 | 2.8 |
| Education | 0.15 | 1.40 | 9.7 | 1.5 |
| TOTAL | | 100.0 | 689.1 | 226.8 |

Table 5: Household expenditure and carbon footprint by category for Germany (2021, Eurostat).

| Category | EF (kg CO ₂ /€) | Germany (%) | Germany (€ bn) | Emissions (Mt CO ₂ e) |
|-----------------------------------|----------------------------|-------------|----------------|----------------------------------|
| Housing, water, electricity, gas | 0.30 | 25.50 | 457.7 | 137.3 |
| Food + non-alcoholic beverages | 0.48 | 11.70 | 209.9 | 100.7 |
| Transport | 0.40 | 13.10 | 235.2 | 94.1 |
| Other goods + services | 0.18 | 13.10 | 235.2 | 42.3 |
| Recreation + culture | 0.20 | 9.50 | 170.5 | 34.1 |
| Restaurants + hotels | 0.45 | 4.00 | 71.8 | 32.3 |
| Furnishings + household equipment | 0.25 | 7.00 | 125.7 | 31.4 |
| Health | 0.20 | 5.60 | 100.5 | 20.1 |
| Alcohol + tobacco | 0.42 | 3.60 | 64.6 | 27.1 |
| Clothing + footwear | 0.25 | 3.80 | 68.2 | 17.1 |
| Communications | 0.15 | 2.30 | 41.1 | 6.2 |
| Education | 0.15 | 0.80 | 14.4 | 2.2 |
| TOTAL | | 100.0 | 1794.8 | 545.9 |