Supporting Information for

**Contribution of the transport sector to climate change mitigation:
Insights from a global passenger transport model coupled with a computable general equilibrium model**

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**Figure S1. Geographical zoning in AIM/Transport and AIM/CGE**

**Table S1. Regional classification**

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Region | Code | Region |
| JPN | Japan | TUR | Turkey |
| CHN | China | CAN | Canada |
| IND | India | USA | United States |
| XSE | Southeast Asia | BRA | Brazil |
| XSA | Rest of Asia | XLM | Rest of South America |
| XOC | Oceania | XME | Middle East |
| XE25 | EU25 | XNF | North Africa |
| XER | Rest of Europe | XAF | Rest of Africa |
| CIS | Former Soviet Union | 　 | 　 |

**Table S2. Endogenous and exogenous variables**

|  |  |
| --- | --- |
| Variables | Description |
| Endogenous variables | *Qr,y* | Total transport demand |
| *Pr,y* | Generalized transport cost |
| *QDISr,y,d* | Distance-wisetransport demand |
| *PDISr,y,d* | Distance-wise price |
| *SDISr,y,d* | Share of each distance *d* |
| *QMODEr,y,d,m* | Mode-wisetransport demand |
| *PMODEr,y,d,m* | Mode-wise price |
| *SMODEr,y,d,m* | Share of each mode *m* |
| *QSIZEr,y,d,m,s* | Size-wisetransport demand |
| *PSIZEr,y,d,m,s* | Size-wise price |
| *SSIZEr,y,d,m,s* | Share of each size *s* |
| *QTECr,y,d,m,s,t* | Technology-wisetransport demand |
| *PTECr,y,d,m,s,t* | Technology-wise price |
| *STECr,y,d,m,s,t* | Share of each Technology *t* |
| *QTECNEWr,y,d,m,s,t* | Demand based on new technology |
| *QTECNEWTr,y,d,m,s* | Total new technology investment |
| *OPRr,y,d,m,s* | Operation rate |
| *ENEr,y,d,m,s,t,f* | Energy consumption |
| Exogenous variables | gdpr*,y* | Gross domestic product |
| *popr,y* | Population |
| *ptimer,y,d,m* | Price of travel time |
| *awhr,y* | Annual working time |
| *ddtsr,y,d,m* | Door-to-door speed |
| *pfuelr,y,d,m,s,t,f* | Price of fuel |
| *pghgr,y,d,m,s,t,f* | Carbon price |
| *pdevicer,y,d,m,s,t* | Price of device |
| *τ* | Depletion rate |
| *eir,y,d,m,s,t,f* | Energy intensity |
| *qtecprer,y,d,m,s,t* | Technology-wisetransport demand in previous year |
| *eiprer,y,d,m,s,t,f* | Energy intensity in previous year |

**Table S3. Regional-wise Mean Absolute Percentage Error (MAPE) (%) of the business as usual (BaU) scenario**

|  |  |
| --- | --- |
| Region | Iteration |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| XAF | 785.53  | 53.90  | 4.57  | 1.88  | 0.60  | 1.41  | 0.57  | 0.84  | 0.77  | 0.65  | 0.75  | 0.59  | 0.67  | 0.56  |
| XNF | 141.01  | 11.58  | 2.37  | 0.87  | 1.03  | 0.19  | 0.47  | 0.22  | 0.35  | 0.27  | 0.30  | 0.28  | 0.27  | 0.27  |
| XOC | 218.00  | 15.89  | 20.53  | 3.36  | 1.43  | 0.92  | 1.15  | 0.73  | 0.90  | 0.58  | 0.79  | 0.59  | 0.73  | 0.61  |
| CAN | 9898.92  | 48.58  | 11.04  | 1.03  | 1.66  | 1.05  | 1.08  | 1.02  | 1.05  | 0.88  | 1.03  | 0.88  | 0.99  | 0.89  |
| CHN | 414.02  | 20.45  | 1.55  | 0.23  | 0.35  | 0.19  | 0.33  | 0.21  | 0.33  | 0.24  | 0.30  | 0.24  | 0.26  | 0.23  |
| XER | 389.37  | 69.34  | 53.14  | 14.24  | 13.18  | 2.50  | 3.27  | 1.67  | 2.39  | 1.79  | 2.29  | 1.85  | 2.08  | 1.83  |
| TUR | 853.13  | 40.96  | 6.70  | 5.28  | 1.37  | 1.91  | 0.89  | 1.14  | 1.03  | 0.98  | 1.00  | 0.92  | 0.93  | 0.88  |
| CIS | 133.44  | 13.27  | 1.60  | 0.28  | 0.65  | 0.26  | 0.41  | 0.24  | 0.25  | 0.26  | 0.24  | 0.29  | 0.24  | 0.27  |
| IND | 783.20  | 42.37  | 134.29  | 89.42  | 95.83  | 77.13  | 76.46  | 63.35  | 60.18  | 49.88  | 45.43  | 36.33  | 31.56  | 22.78  |
| JPN | 309.51  | 47.51  | 80.08  | 33.11  | 34.68  | 13.67  | 11.61  | 2.28  | 3.57  | 1.80  | 2.51  | 1.93  | 2.30  | 1.99  |
| BRA | 980.98  | 29.17  | 8.96  | 0.71  | 0.61  | 0.53  | 0.59  | 0.50  | 0.57  | 0.50  | 0.54  | 0.49  | 0.51  | 0.48  |
| XLM | 560.92  | 36.39  | 1.50  | 0.81  | 1.66  | 0.94  | 1.19  | 0.71  | 0.81  | 0.56  | 0.55  | 0.48  | 0.50  | 0.48  |
| XME | 221.86  | 6.09  | 1.77  | 0.79  | 1.73  | 0.56  | 1.01  | 0.32  | 0.55  | 0.28  | 0.31  | 0.34  | 0.29  | 0.34  |
| XSE | 660.47  | 46.81  | 3.33  | 0.30  | 0.45  | 0.21  | 0.39  | 0.18  | 0.39  | 0.25  | 0.37  | 0.25  | 0.29  | 0.21  |
| XSA | 335.92  | 13.75  | 1.79  | 0.56  | 0.36  | 0.23  | 0.49  | 0.25  | 0.48  | 0.26  | 0.38  | 0.26  | 0.31  | 0.25  |
| USA | 4439.70  | 15.50  | 8.09  | 0.91  | 0.83  | 0.90  | 0.91  | 0.82  | 0.93  | 0.78  | 0.90  | 0.78  | 0.85  | 0.78  |
| XE25 | 308.15  | 108.99  | 43.13  | 67.78  | 49.45  | 44.92  | 28.75  | 24.15  | 10.48  | 8.42  | 3.61  | 2.58  | 2.00  | 1.87  |