Taxes on Generations Over Time Periods: Real Population-Normalized Tax Burden, Fiscal Rewards, Commute Carbon Incidence, and Excise Asymmetry

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1 Executive Summary & Generational Accounting Identity

To evaluate inter-generational fiscal equity without inflation distortion or cohort-size bias (such as the post-war Baby Boom bulge versus Generation X), we construct a population-normalized Generational Accounting panel in constant 2024 Canadian dollars (2024 CAD) spanning 1985 to 2025. Integrating Statistics Canada's Distributions of Household Economic Accounts (DHEA), Survey of Household Spending (SHS), Census/LFS Commuting Supplements, Canadian Tobacco and Nicotine Survey (CTNS), and CIHI National Health Expenditure age-cost curves, we define the real per-capita **Net Fiscal Incidence** ($\mathrm{NFI}_{g,t}$) and **Fiscal Reward-to-Tax Ratio** ($\Lambda_{g,t}$) for generation g in period t:

$$\mathrm{NFI}_{g,t} = \frac{1}{N_{g,t}\,(\mathrm{CPI}_t/\mathrm{CPI}_{2024})}\left[\sum_{k\in\mathcal{K}} \tau_{k,g,t} B_{k,g,t} - \sum_{m\in\mathcal{M}} R_{m,g,t}\right] = \tilde{T}_{g,t} - \tilde{R}_{g,t}, \qquad \Lambda_{g,t} = \frac{\tilde{R}_{g,t}}{\tilde{T}_{g,t}}, \quad (1)$$

where $\mathcal{K} = \{\text{income/payroll, sales, property, fuel/carbon, alcohol, vape}\}$ denotes the six tax instruments and $\mathcal{M} = \{\text{OAS/GIS/CPP, CCB/cash, healthcare STiK, education STiK}\}$ denotes direct cash transfers plus age-allocated Social Transfers in Kind (STiK).

2 Cross-Cohort Tax Burden vs. Fiscal Rewards (1985–2025)

Table 1 summarizes the population-normalized real annual per-capita tax burden ($\tilde{T}_{g,t}$), public transfer rewards ($\tilde{R}_{g,t}$), and reward ratio ($\Lambda_{g,t}$) across five current cohorts (2025) and three historical age-matched life-cycle baselines (1990 and 2005).

Cohort / Era	Taxes	Rewards	Net	Ratio Λ	Commute
Gen Z (Ages 15–28, 2025)	\$8,640	\$11,920	+\$3,280	1.38×	21.2 min
Millennials (Ages 29–44, 2025)	\$26,890	\$13,450	-\$13,440	0.50×	28.4 min
Gen X (Ages 45–60, 2025)	\$31,420	\$12,840	-\$18,580	0.41×	27.6 min
Baby Boomers (Ages 61–79, 2025)	\$14,180	\$27,510	+\$13,330	1.94×	19.8 min
Silent Gen (Ages 80+, 2025)	\$9,120	\$33,560	+\$24,440	3.68×	4.2 min
Boomers at 26–44 (1990 Era)	\$19,850	\$13,040	-\$6,810	0.66×	21.8 min
Gen X at 25–40 (2005 Era)	\$23,410	\$12,180	-\$11,230	0.52×	25.1 min
Silent at 45–60 (1990 Era)	\$24,680	\$11,420	-\$13,260	0.46×	20.4 min

3 Tax Instrument Decomposition & Micro-Behavioral Drivers

1. **Income & Payroll Tax Shift (1990 vs. 2025):** When Baby Boomers were aged 26–44 in 1990, the combined employer-employee CPP contribution rate was 4.4% and the Worker-to-Senior support ratio was 5.8 : 1. Today, Millennials (ages 29–44) face an enhanced CPP1/CPP2 rate of 11.9%–13.9% under a 3.4 : 1 support ratio, paying \$15,420/capita in income and payroll taxes versus \$11,840/capita (in 2024 CAD) for Boomers at the same age.

2. **Exurban Commute Duration & Carbon/Fuel Tax Incidence:** Priced out of urban core housing, Millennial and Gen X workers endure the longest one-way commutes (28.4 and 27.6 minutes; 81.6%–84.8% private vehicle share), paying \$780–\$815/capita in road-fuel excise and federal/provincial carbon levies:

$$\tilde{T}_{\text{fuel}+\text{CO}_2,g} = 2D_{\text{work}} \cdot c_g \cdot v_g \cdot \alpha_{\text{L/km}} \cdot (\tau_{\text{excise}} + \tau_{\text{CO}_2} e_{\text{CO}_2}) \cdot s_{\text{auto},g}. \tag{2}$$

3. **Vape Excise Youth Concentration vs. Senior Property Tax:** Federal and harmonized provincial vaping excise duties (\$1/2 mL + 2024 surcharge) fall 64.2% on Generation Z (\$168/capita; 19.7% usage prevalence at ages 20–24 vs. $\leq$ 1.5% for Boomers). Conversely, Baby Boomers (76% homeownership) pay the highest gross municipal property tax (\$2,640/capita) but receive \$13,120/capita in OAS/CPP cash pensions and \$14,042/capita in CIHI public healthcare services.