

Generational and National Transfer Accounting: A Review of the Long-run Fiscal Sustainability in Mexico

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Outline

1. Motivation
2. Generational accounting
3. Inputs and assumptions
4. Preliminary results

1. Motivation

1. Recent pressures in the public finances of Mexico after the financial turmoil of 2008
2. Historical low taxation levels in Mexico (around 10% of GDP)
3. Expected reduction in oil revenues in the near future (which represent around 30% of the total government revenues)
4. Proliferation of social programs, high unemployment in formal sectors, informality and low productivity
5. **Pension reform for formal workers in the private sector in Mexico: 1995**
6. **Pension reform for workers in the public sector: 2008**
7. Sustainability of current tax-benefit systems

2. Generational accounts

$$N_{y,k} = \sum_{s=\max(t,k)}^{k+\omega} T_{s,k} P_{s,k} (a+r)^{-s-t}, \quad (1)$$

where $T_{s,k}$ stands for the projected average net tax payments to the government made in year s by the generation born in year k , whereas $P_{s,k}$ stands for the number of surviving members of the cohort in year s who were born in year k and ω the maximum length of life. A set of generational accounts is a set of $N_{y,k}$, one for each existing and future generations.

2. Generational accounts...

Intertemporal budget constraint:

$$\sum_{s=0}^{\omega} N_{t,t-s} + \sum_{s=t}^{\infty} N_{t,t+s} = \sum_{s=t}^{\infty} G_s(1+r)^{-(s-t)} - W_t^g \quad (2)$$

We then have to estimate:

- ▶ The net wealth minus explicit debt of the public sector
- ▶ The present value of the government consumption
- ▶ The net present value of the GAs for the present generations

We assume:

- ▶ Real productivity rate, $g=1.5\%$
- ▶ Real interest rate, $r=5\%$
- ▶ base year= 20044

2. Generational accounts...

Generational imbalance: defined as the ratio of the difference in the net payment between the future generations and the age0 cohorts at the benchmark year at the percentage term, and the magnitude of the increase in the tax burden, proportional to that under the current policy, required to attain the longrun budgetary balance.

2. ...FSR

Fiscal support ratio:

$$\hat{fsr} = \frac{\tau}{t} = \frac{\sum_a^\omega p_a \tau_a}{\sum_a^\omega p_a t_a}, \quad (3)$$

3. Data processing and assumptions

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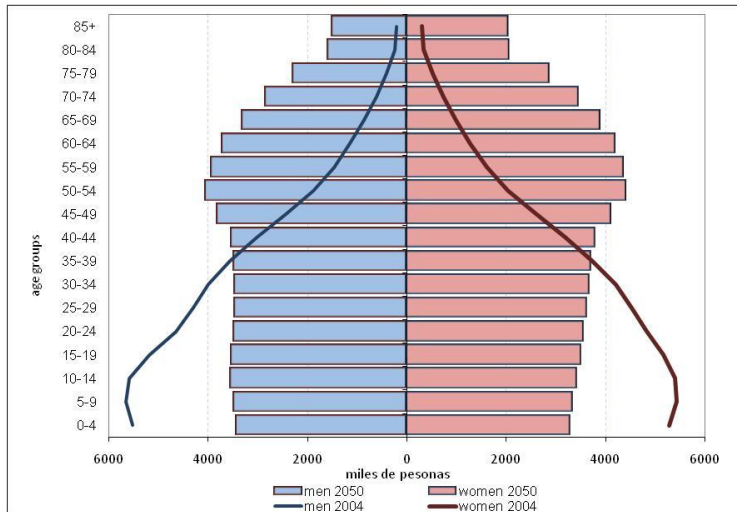


Figure: Age distribution of the population: 2004-2050

3. Data processing and assumptions

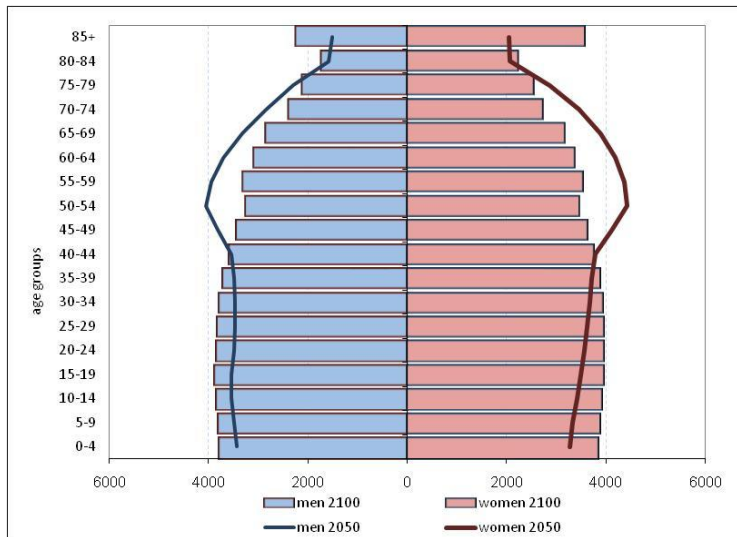


Figure: Age distribution of the population: 2050-2100

3. Data processing and assumptions

Revenues allocated through GAs	764,603.9
Income tax	345,217.5
Asset tax	182,815.7
Payroll	162,401.8
VAT	285,022.7
Excise taxes	85,245.1
Alcohol, beer and other	14,007.3
Tobacco	17,903.2
Gasoline and diesel	53,334.5
Tax on new vehicles	5,086.6
Import tax	29,521.0
Export tax	0.2
Tax on vehicle property	13,007.8
Other	1,503.0
Seigniorage	34,283.2

Table: Public sector revenues (2004 million Mexican pesos)

3. Data processing and assumptions

Revenues used for the estimation of the net debt	1,006,710.4
Accessories	5,515.8
Rights (except oil)	16,591.4
Products	5,406.5
Aprovechamientos	84,809.8
Other income	310,361.0
Oil revenues	584,025.9

Table: Public sector revenues (2004 million Mexican pesos)

3. Data processing and assumptions

Public debt stock	
Historical balance of financial liabilities (SHRF)	3148032
Complementary information:	
Primary expenditure	1595781.0
Primary balance	189012.1
Budget balance	-17817.1

Table: Public sector debt and primary balance (2004 million Mexican pesos)

3. Data processing and assumptions

Transfers allocated through Gas	264039.3
Health	171207.1
Direct transfers	92832.2
Procampo	13117.5
Oportunidades	25651.7
Electric residential subsidy	
Government consumption	1331741.8
Programmable expenditure*	730369.4
ADEFAS and revenue sharing to states and municipalities	268828.6
Education	332543.8

* Excludes health, education consumption and direct transfers

Table: Public sector expenditures (2004 million Mexican pesos)

3... Age-specific transfers

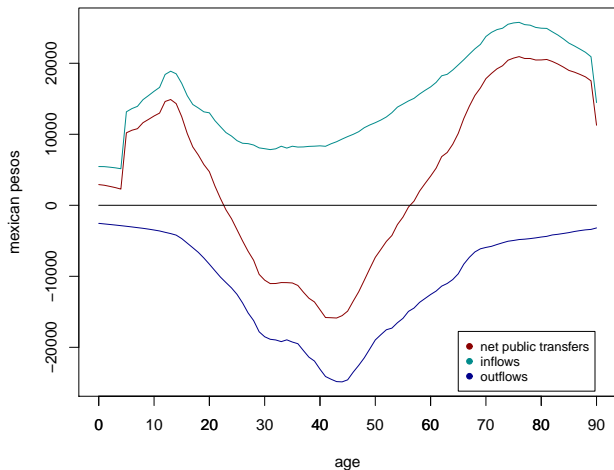
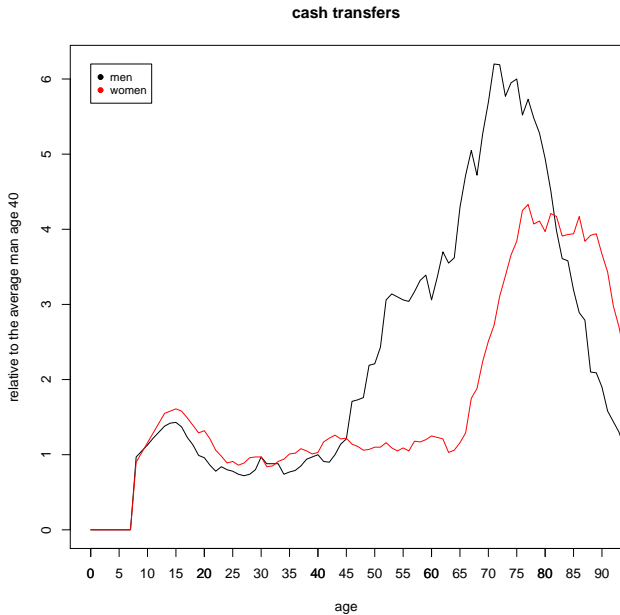
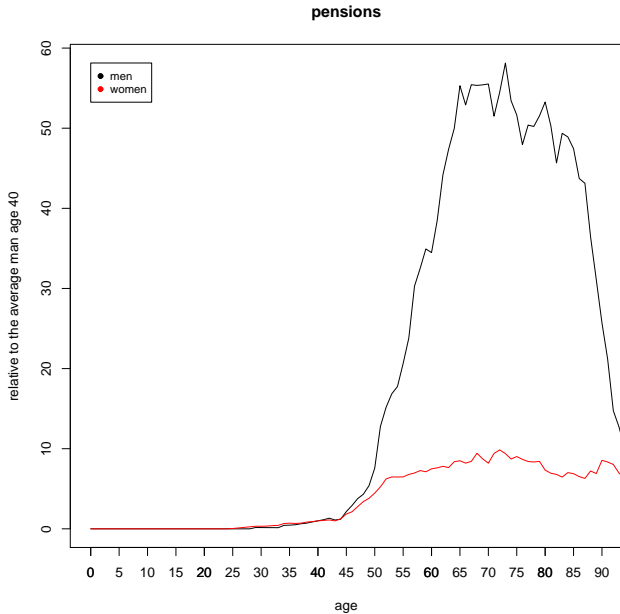


Figure: Age distribution of public inflows and outflows for the NTA framework

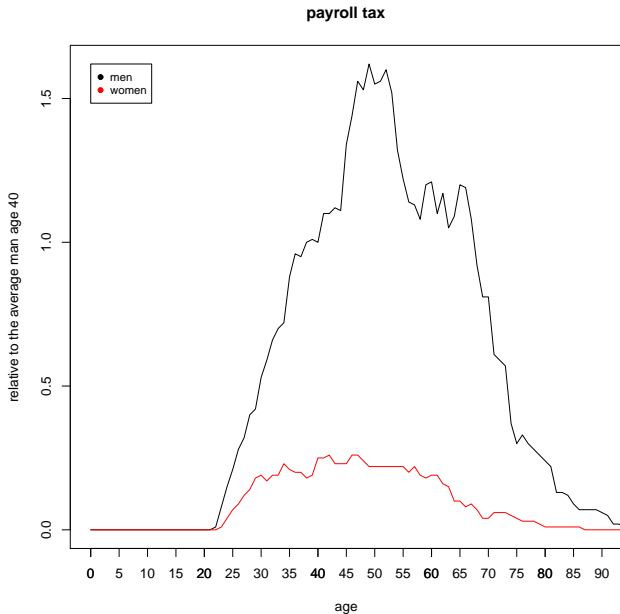
3... Age-specific transfers



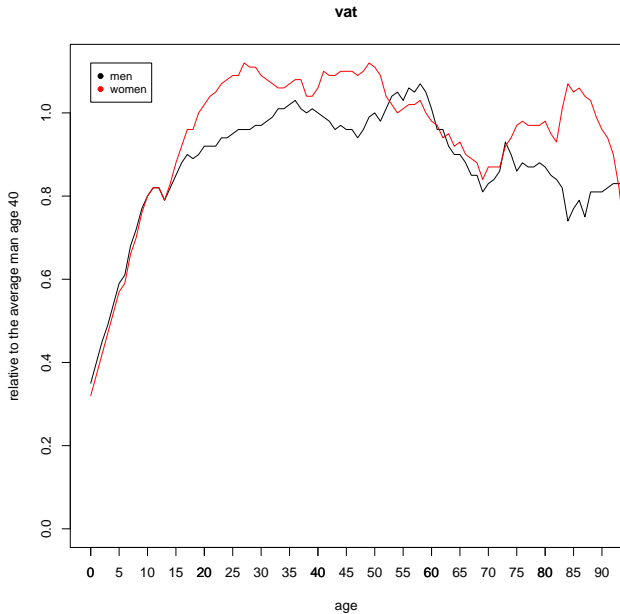
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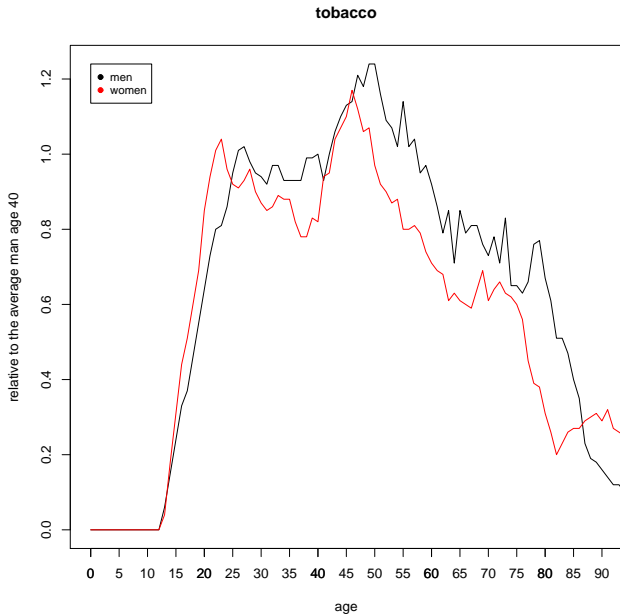
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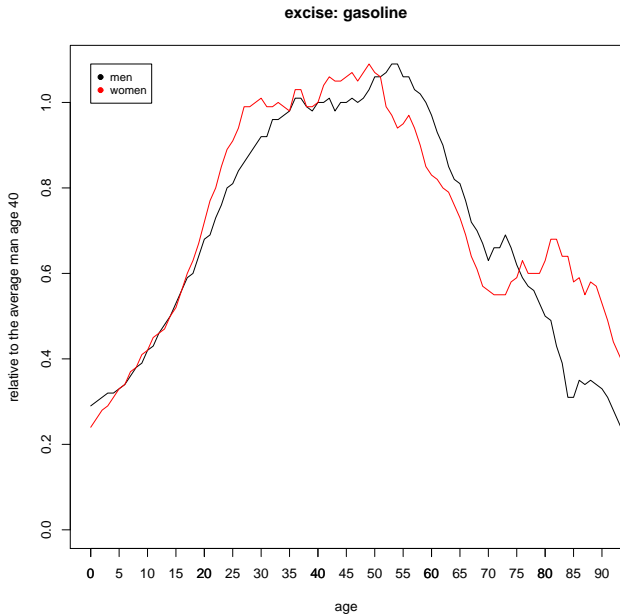
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4. Preliminary results

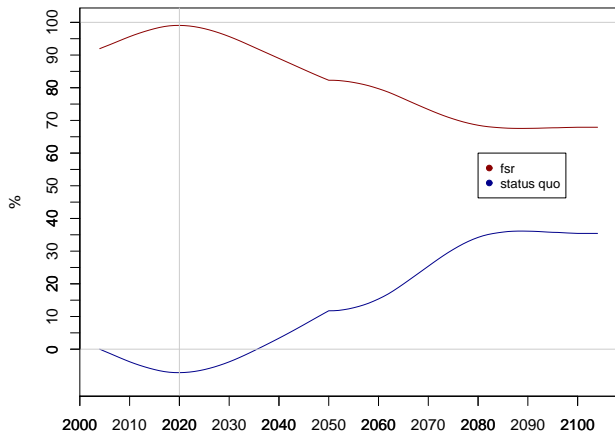


Figure: Fiscal support ratio (red) and increments in taxes necessary to preserve the *status quo* (blue).

4. Preliminary results

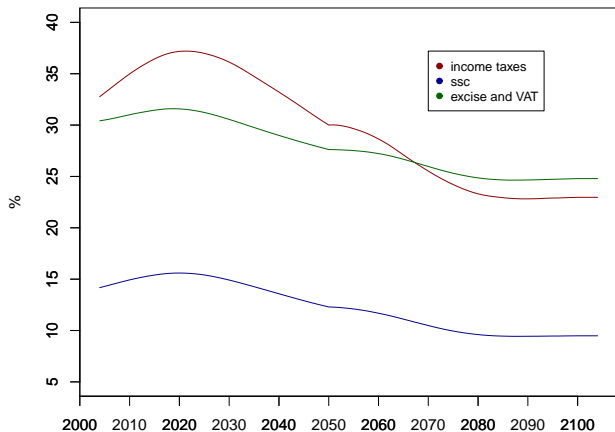


Figure: Impact of individual taxes and social contributions.

4. Preliminary results

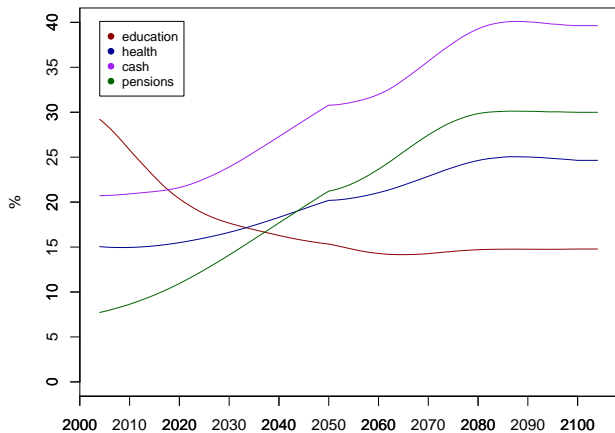


Figure: Impact of transfer components.