

# Generational Accounts for Ecuador

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# Objective

- to examine the implied fiscal impacts across generations in Ecuador using the Generational Accounting method (GA)
- GA is the set of the present values of the net outflow to the government, across cohorts for their remaining lifetime, to finance the government consumption of the present and future.

## GA

- Covers only public sector
- Stock values
- Public transfers = direct transfers in the form of cash or in-kind transfers, the incidence of the benefits of which is relatively clear.
- Public consumption = expenditures to provide the public goods such as the general public service, the national defense, public order and safety, health service, educational service, welfare services, economic development, transportation and communication and others, the incidence of the benefit of which is not clear.

## NTA

- Covers both private and public sectors
- Right now is flow values, extending to stock values
- Public transfers=public consumption

# Why Ecuador?

- Social spending has increased when new government took office in 2007
  - Social spending increased from 10.7% of GDP in 2006 to 15% in 2012.
  - Benefits and coverage were increased
  - Institutional framework of social protection is being centralized;
  - Social services financing was converted towards public finance rather than mixed alternatives (i.e., shared by private production and public financing)
- Current coverage of social protection system is being financed oil revenues and internal and external debts.

2011

## Government revenues and expenditures

2006

| Public sector revenues<br>(percentage of total revenue) |                 | Public sector expenditures<br>(percentage of total expenditure) |                 | Public sector revenues<br>(percentage of total revenue) |                | Public sector expenditures<br>(percentage of total expenditure) |                |
|---|-----------------|---|-----------------|---|----------------|---|----------------|
| <b>Taxes and transfers</b>                              | <b>6,433.5</b>  | <b>Government consumption</b>                                   | <b>10,091.2</b> | <b>Taxes and transfers</b>                              | <b>3,218.0</b> | <b>Government consumption / In kind transfers</b>               | <b>5,069.0</b> |
|   | (32%)           | <b>(in kind transfers)</b>                                      | (41%)           |   | (38%)          |   | (50%)          |
| income, profits and capital gains                       | 3,077.8         | education   | 2,978.3         | income, profits and capital gains                       | 957.0          | education   | 1,879.0        |
| net consumption taxes                                   | 1,662.7         | health  | 1,958.1         | consumption taxes                                       | 1,301.0        | health  | 828.0          |
| property taxes  | 234.9           | other government consumption                                    | 5,154.7         | property taxes  | 169.0          | other government consumption                                    | 2,362          |
| international trade and transactions                    | 1,077.8         |   |                 | international trade and transactions                    | 665.0          |   |                |
| other taxes   | 380.4           |   |                 | other taxes   | 126.0          |   |                |
| <b>Property income</b>                                  | <b>8,866.0</b>  | <b>Property expenses</b>  | <b>6,261.4</b>  | <b>Property income</b>                                  | <b>3,828.0</b> | <b>Property expenses</b>  | <b>2,601.0</b> |
|   | (44%)           |   | (25%)           |   | (45%)          |   | (26%)          |
| capital income (public enterprises' revenue)            | 2,382.4         |   |                 | capital income  | 1,253.0        |   |                |
| <b>property income</b>                                  |                 |   |                 | <b>property income</b>                                  |                |   |                |
| <b>other property income (crude oil royalties)</b>      | <b>6,483.6</b>  |   |                 | <b>other property income</b>                            | <b>2,575.0</b> |   |                |
| <b>Social insurance revenues</b>                        | <b>4,971.5</b>  | <b>Cash transfers</b>   | <b>8,445.9</b>  | <b>Social insurance revenues</b>                        | <b>1,458.0</b> | <b>Cash transfers</b>   | <b>2,521.0</b> |
|   | (25%)           |   | (34%)           |   | (17%)          |   | (25%)          |
|   |                 | Retirement pensions   | 3,036.0         |   |                | Retirement pensions   | 2,100.0        |
|   |                 | <b>welfare social protection cash payments</b>                  | <b>5,409.9</b>  |   |                | <b>Welfare &amp; social protection cash payments</b>            | <b>421.0</b>   |
| <b>Subtotal</b>   | <b>20,271.1</b> | <b>Subtotal</b>   | <b>24,798.5</b> | <b>Subtotal</b>   | <b>8,504</b>   | <b>Subtotal</b>   | <b>10,191</b>  |
|   | (100%)          |   | (100%)          |   | (100%)         |   | (100%)         |

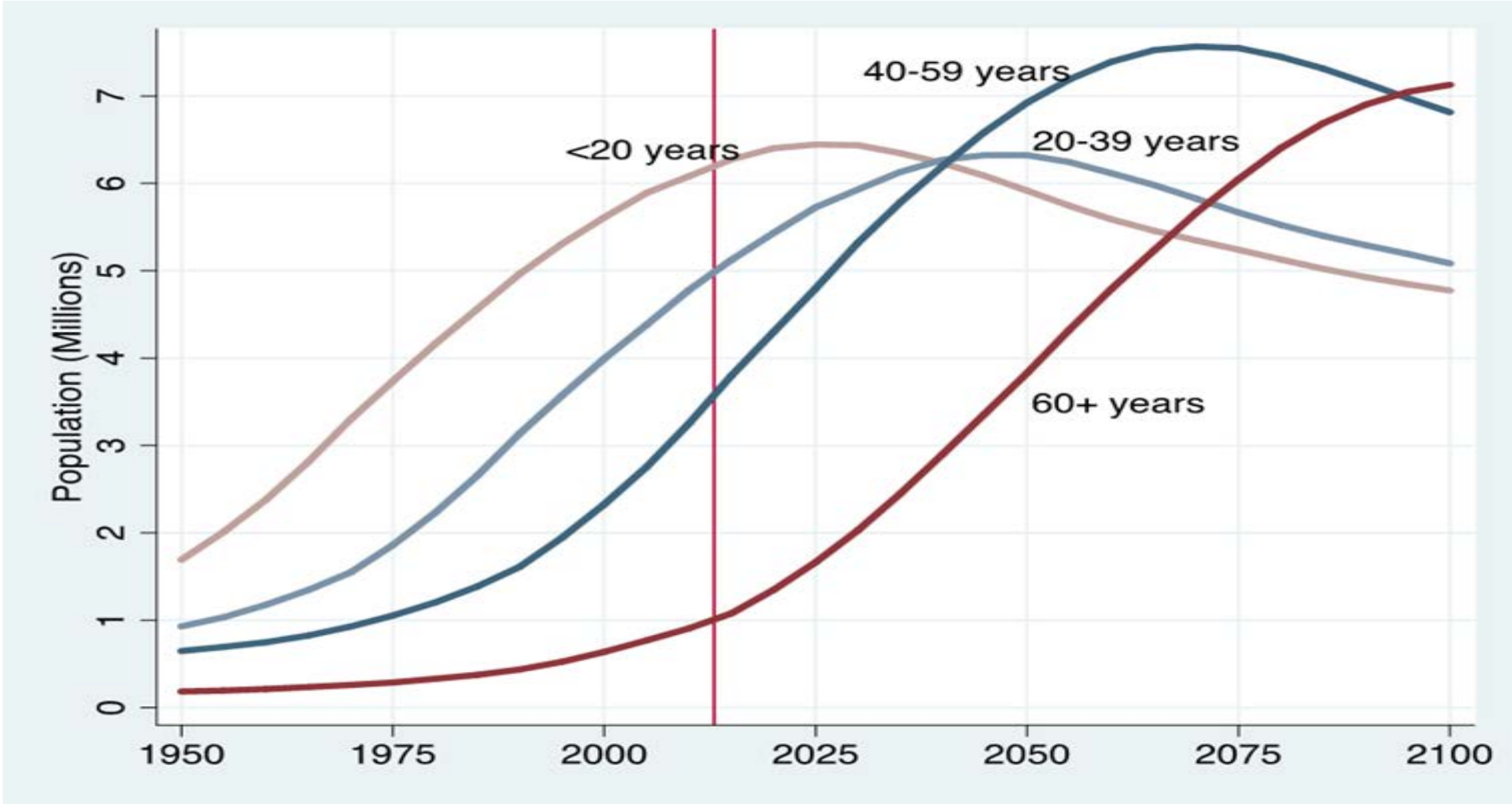
# Outline

1. Economy and demography
2. Social protection programs
3. Generational Accounts

# Economy and Demography of Ecuador

- upper-middle-income country and a member of OPEC
- USD10,000 per capita GDP PPP
- oil revenues account for 20% of GDP
- with a population size of approximately 15 million people
- total fertility rate of approximately 2.6 children per woman

# Population by age groups, 1950-2100

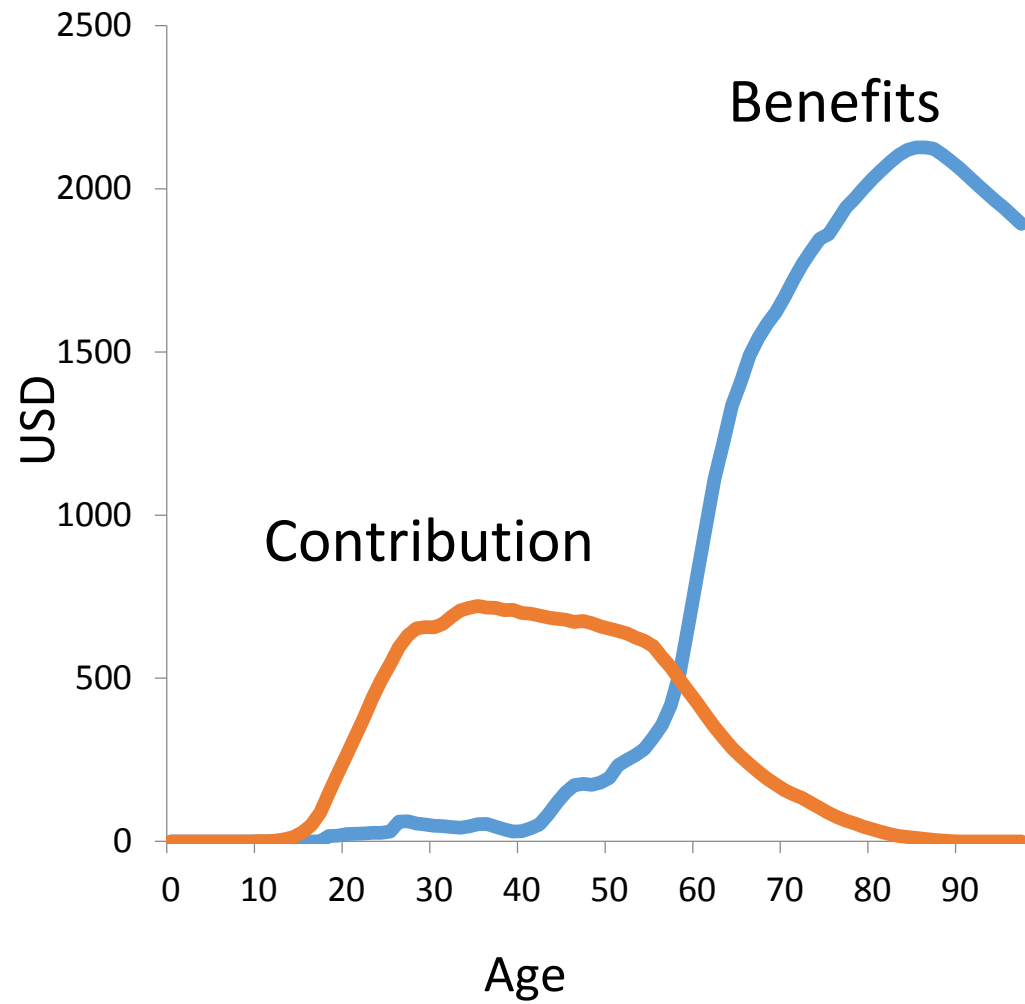




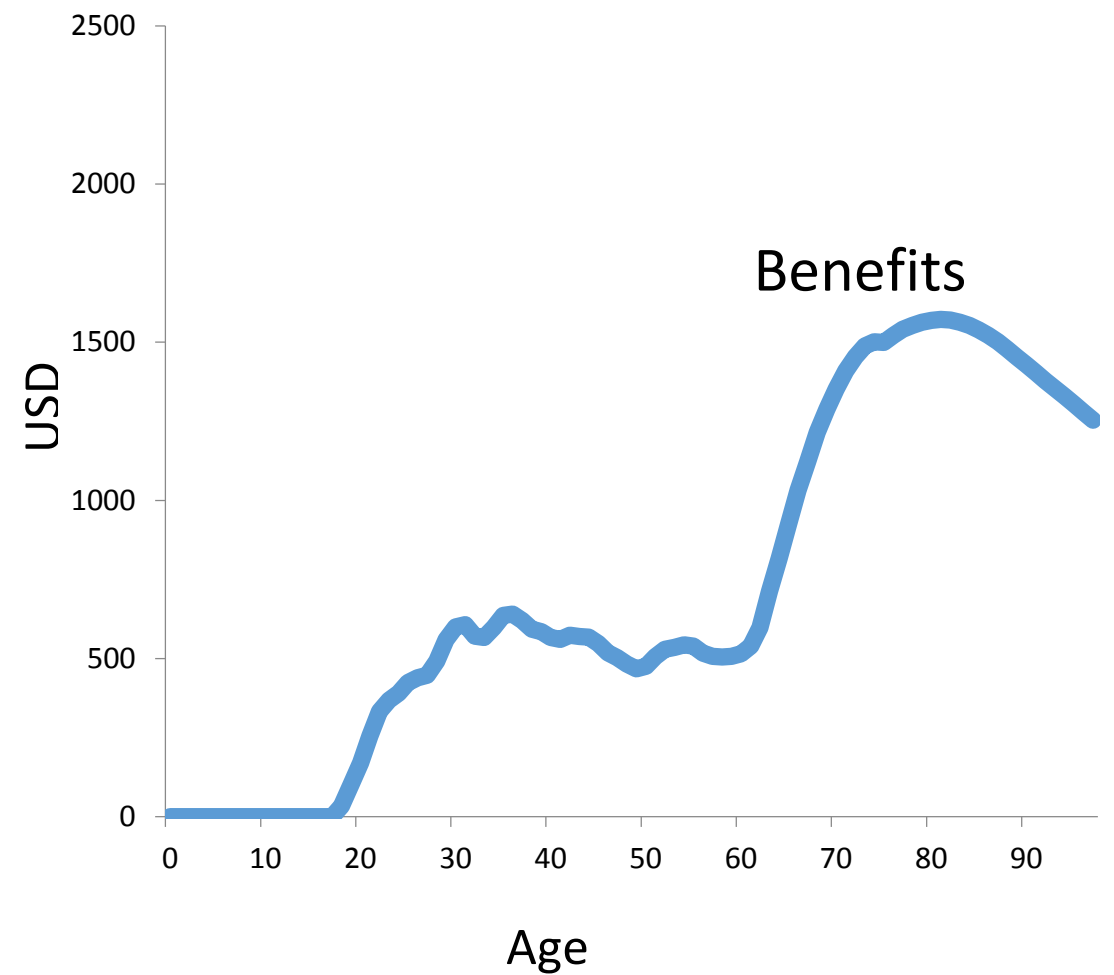
# Social protection programs

| Contributory   | Non Contributory  |
|--|---|
| <p><b>Social Security</b></p> <ul style="list-style-type: none"><li>• Mixed system of pay-as-you-go and indiv capitalization</li><li>• Covers 1/5 of total population or 1/3 of economically active population</li><li>• Employee contribution: 9.35-11.35%</li><li>• Employer contribution: 17.48-19.48%</li><li>• Old-age pension, health insurance, labor risk insurance, and rural worker insurance</li><li>• Pension: \$132 ---\$1452 per month</li></ul> | <p><b>Human Development Bond</b></p> <ul style="list-style-type: none"><li>• \$35 per month for elderly w/o pension and mothers in the poorest population quintile and have children under 18 years old</li><li>• Covers about 1/3 of elderly</li></ul> <p><b>Universal Free Health Care</b></p> <ul style="list-style-type: none"><li>• &gt;1800 health institutions provided by Ministry of Health</li></ul> <p><b>Disability Cash Transfers</b></p> <p><b>Housing Bond</b></p> |

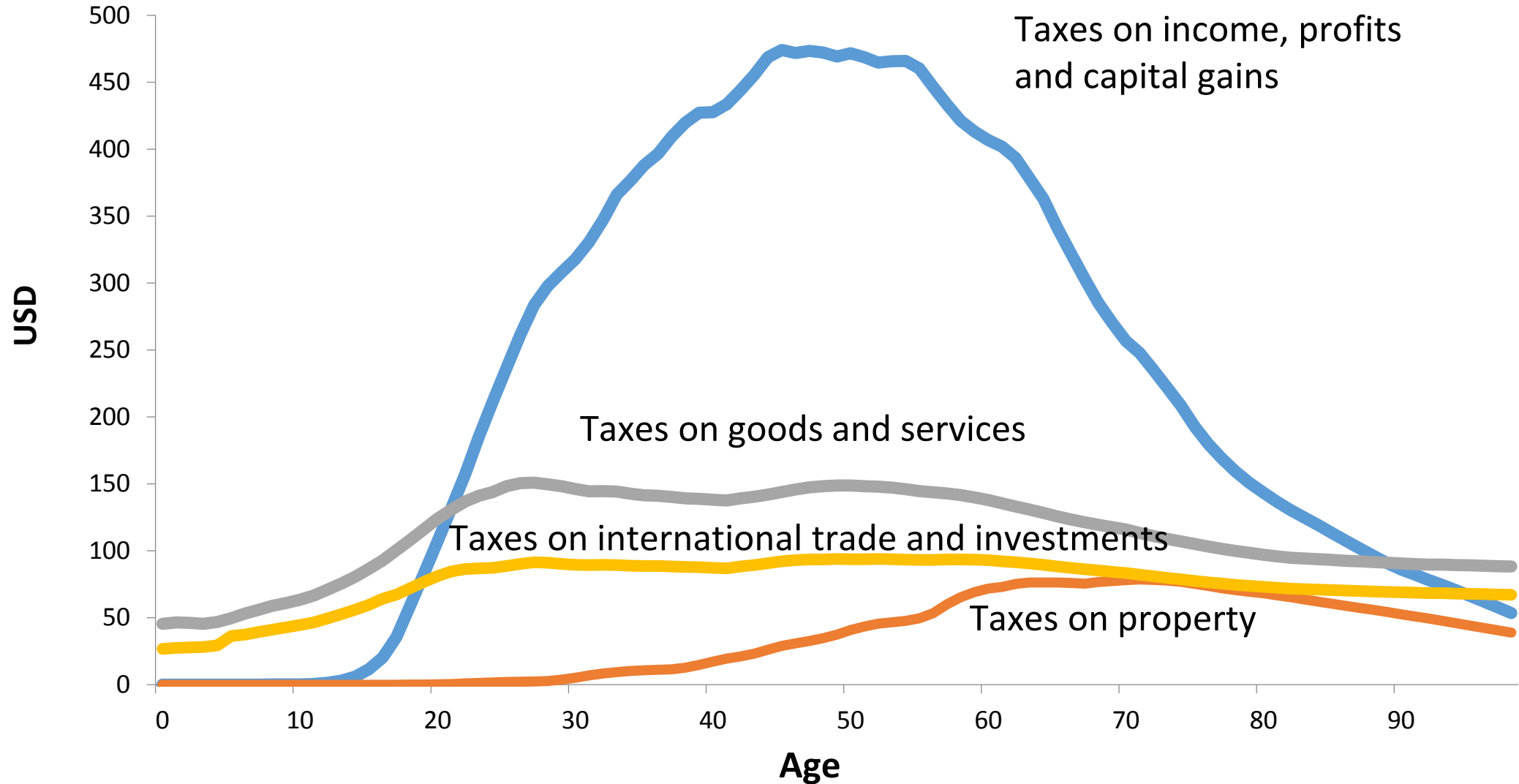
### Contributory Social Security (per capita)



### Non-Contributory Social Protection (per capita)



# Various tax revenues profiles per capita, 2011



## GA Results: Net Payment per capita 2011, USD

| g=8.7%<br>dis=12%    |                      | Contributory<br>programme | Non-<br>contributory<br>programmes     | Government taxes                               |                 |                                 |  |                |
|----------------------|----------------------|---------------------------|--|--|-----------------|---------------------------------|--|----------------|
| Age                  | Total net<br>payment | Social<br>security        | Social<br>protection<br>cash transfers | Income,<br>profits and<br>capital gains<br>tax | Property<br>Tax | Goods<br>and<br>services<br>tax | International<br>trade and<br>transaction<br>tax | Other<br>taxes |
| 0                    | 9,172                | 5,710                     | -6,270                                 | 4,243  | 204             | 2,879                           | 1,869  | 537            |
| 10                   | 10,919               | 7,571                     | -9,343                                 | 6,006  | 305             | 3,424                           | 2,212  | 744            |
| 20                   | 11,275               | 9,203                     | -13,501                                | 8,124  | 452             | 3,668                           | 2,336  | 992            |
| 30                   | 7,642                | 6,622                     | -15,278                                | 8,995  | 667             | 3,393                           | 2,197  | 1,048          |
| 40                   | 204                  | 153                       | -15,191                                | 8,392  | 907             | 3,030                           | 2,006  | 907            |
| 50                   | -12,056              | -8,788                    | -15,825                                | 6,575  | 1,079           | 2,534                           | 1,724  | 644            |
| 60                   | -27,895              | -19,125                   | -17,548                                | 4,164  | 1,066           | 1,870                           | 1,338  | 340            |
| 70                   | -32,474              | -20,327                   | -17,231                                | 2,042  | 789             | 1,228                           | 911  | 115            |
| 80                   | -24,646              | -15,655                   | -11,625                                | 871  | 455             | 730                             | 554  | 25             |
| 90                   | -13,487              | -8,810                    | -5,904                                 | 324  | 208             | 390                             | 298  | 7              |
| 99                   | -2,916               | -1,941                    | -1,221                                 | 52   | 39              | 87                              | 67   | 1              |
| Future<br>generation | <b>11,072</b>        |                           |  |  |                 |                                 |  |                |

Aggregate net payments of all generations are not enough to cover total gov consumption.

Future generation will pay for accumulated deficits.

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|--------------------------|-------------------|------------------------|----------------------------------|---------------------------------------|--------------|------------------------|---|-------------|
| Age                      | Total net payment | Social security        | Social protection cash transfers | Income, profits and capital gains tax | Property Tax | Goods and services tax | International trade and transaction tax | Other taxes |
| 0                        | 9,172             | 5,710                  | -6,270                           | 4,243                                 | 204          | 2,879                  | 1,869                                   | 537         |
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| <b>Future generation</b> | <b>11,072</b>     |                        |                                  |                                       |              |                        |   |             |

Teenage generations are paying the most

Older generations appeared to be receiving more than paying

Future generations will pay for accumulated deficits

Aggregate net payments of all generations are not enough to cover total gov consumption.

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## Generational Imbalance, Alternative Assumptions

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| Scenario                             | Generational imbalance |
|--------------------------------------|------------------------|
| <b>I. Baseline Case</b>              |                        |
| growth rate= 8.7%, discount rate=12% | 21                     |
| <b>II. Other assumptions</b>         |                        |
| no growth, $g=0\%$                   | 363                    |
| slower growth, $g=5\%$               | 72                     |
| lower discount rate, 8%              | 81                     |

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Generational imbalance measures the percentage difference of future generation on a new born in 2011. The larger the index, the higher generational imbalance there exists.

# Summary

1. GA reflects the fiscal imbalance well. The generation imbalance of 21 in the baseline case indicates that future generation is paying 21% more than a newborn in 2011. The imbalance will be higher if economic growth slows down.
2. It is essential to have adequate social protection system covering all population. However, Ecuador is heavily relied on oil revenues, that is subjected to changes in oil prices, which challenges the financial soundness of such funding.
3. Public funding can be more diversified with increase non-oil revenues and expand the participation rate of contributory programs





# Is the deficit considered high?

Net payment of future generation per capita

| Ecuador , 2011 | South Korea, 2009 | Taiwan POC, 2010 |
|----------------|-------------------|------------------|
| USD 11,072     | USD 314           | USD 118          |