The demographic transition: opportunities and challenges on the path to achieving the Sustainable Development Goals in Latin America and the Caribbean

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Motivations

- LAC has witnessed rapid demographic, social, economic and political transformation, but inequalities remain high within the region

- The demographic transition has been faster than societies' ability to promote sustainable development for all

- The 2030 Agenda for Sustainable Development - people-centered, rights-based approach, universal, holistic view of development - is susceptible to demographic changes

- The NTA provides a comprehensive framework for examining the generational economy across countries and may help design forward-looking policies by connecting demographic changes with the SDGs

Objectives

- Main Goal: relate demographic changes with NTA and SDG measures with a special focus on Latin America and the Caribbean

    1. <u>Characterize the demographic transition: changes in the population age structure</u> (child and old-age dependency ratios); cluster countries by stages of the age transition

    2. <u>Categorize the allocation of resources over the life cycle: children and elderly.</u> Cluster NTA countries according to young and old-age related NTA measures. Relate the NTA with demographic patterns.

    3. <u>Select SDG indicators</u> that are most likely to be interrelated with both demographic changes and NTA measures. <u>Explore potential associations</u>.

    4. Discuss challenges and provide recommentations

- The analysis does not intend to model and test any casual relations, it is an exploratory description of the potential associations between the three dimensions: demographic, generational and development

The Age Transition

Data & Methods

- Changes in the population age structure

  – Medium-fertility variant of the 2019 Revision of the U.N population estimates and projections: 201 countries, both sexes, regions, sub-regions and countries, 1950-2100

  – Synthetic demographic measures: Child (0-19) and Old-age (65+) dependency ratios

  – Summarize measures for all years into weigthed averages (years are weights) of CADR and OADR

  – Apply two methods: visual inspection with arbitrary cutoff points; and K-means clustering. Very similar results.
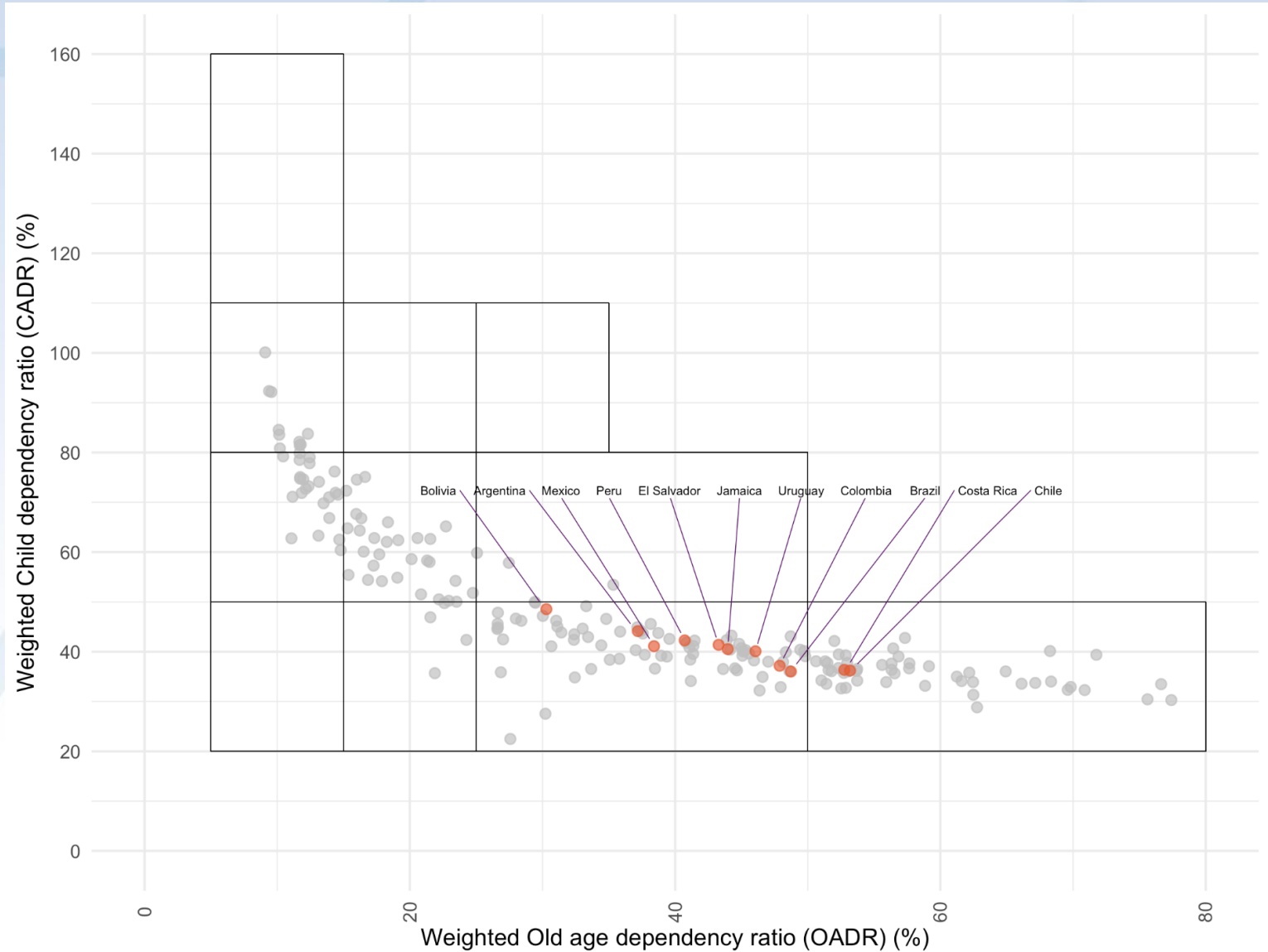
Child and old-age dependency ratios by TFR, world, **1950-2100**
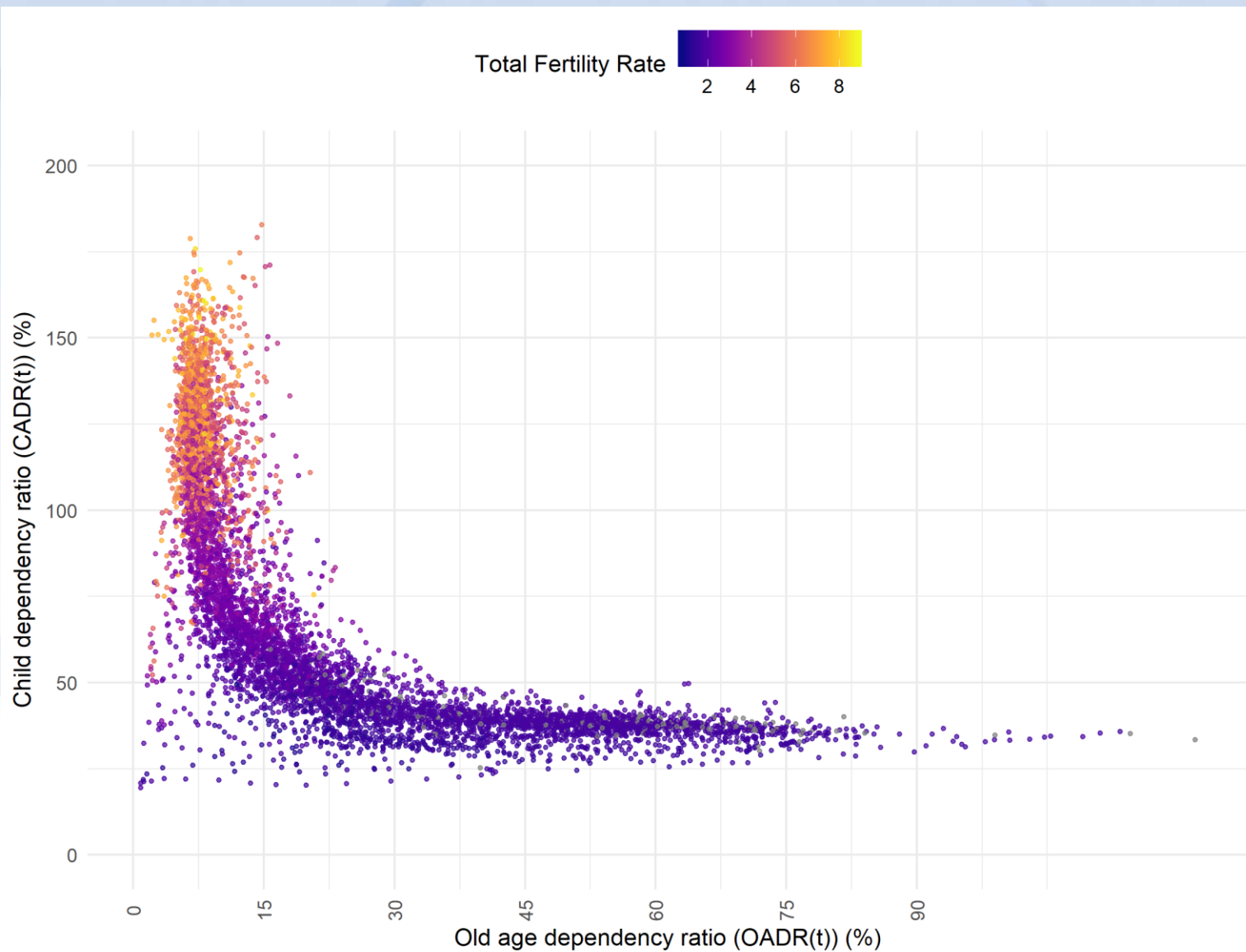
Weighted dependency ratios by groups, **NTA-LAC countries**, **1980-2020**
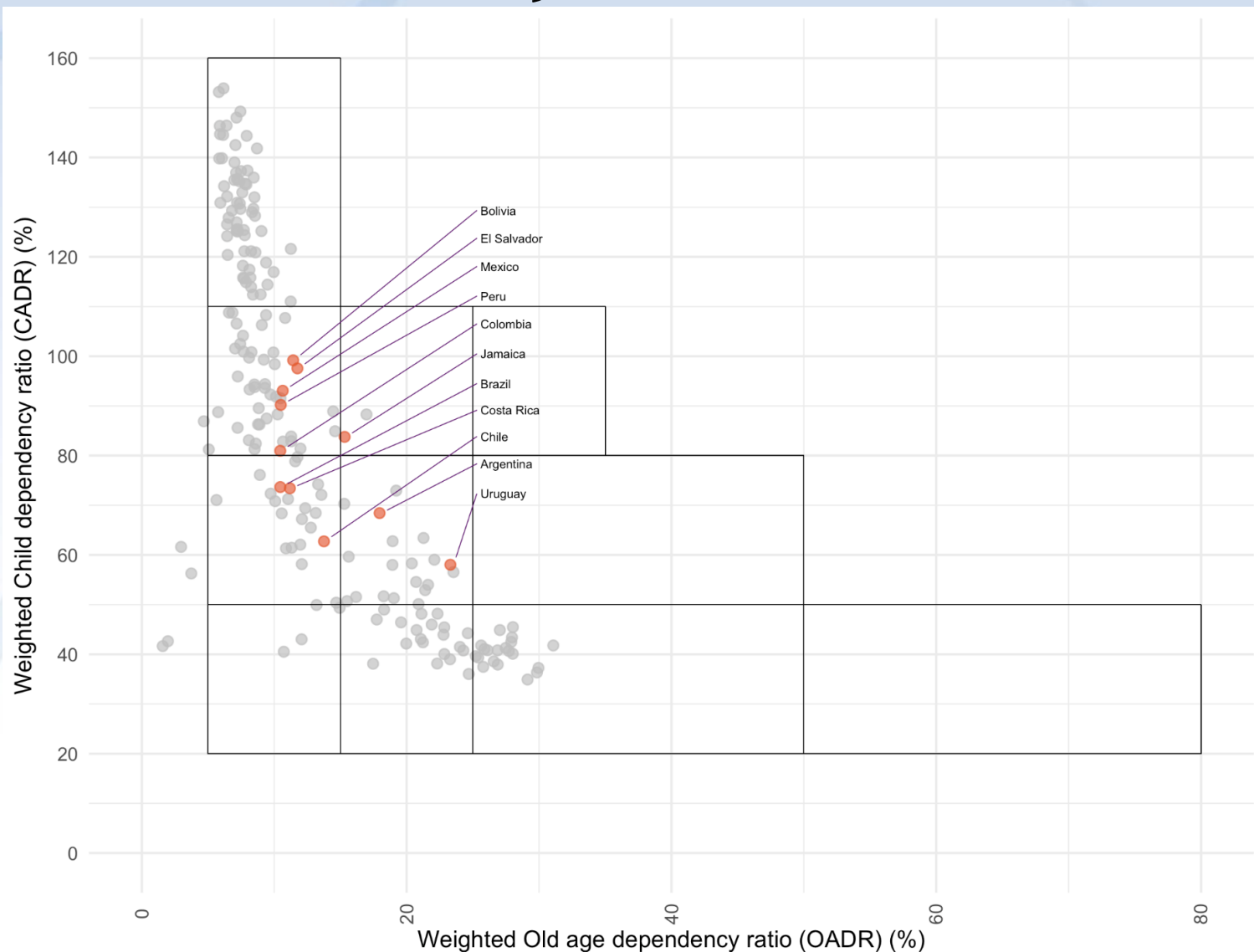
Weighted dependency ratios by groups, **NTA-LAC countries**, **2025-2100**

The National Transfer Accounts

Data & Methods

- NTA measures
  - Size and Composition of consuption at younger ages

    LCD0-19/YL30-49 and CG0-19/CF0-19

  - Size and composition of consumption at older ages

    LCD65+/YL30-49 and CG65+/CF65+

  - Intergenerational relations

    TF65+/TF0-19 and TG65+/TG0-19

- Clustering strategy
  - K-means clustering for each NTA dimension (young, old and intergenerational)
  - Arbitrary/Straighforward criteria: quadrants
  - Data for 43 countries
  - For countries with more than one observation: simple averages of the indicators

- Associate Demographic and NTA measures
  - Graphically (Scatter Plots)
  - Correlation Coeficients

NTA - magnitude and composition of consumption: **older ages**
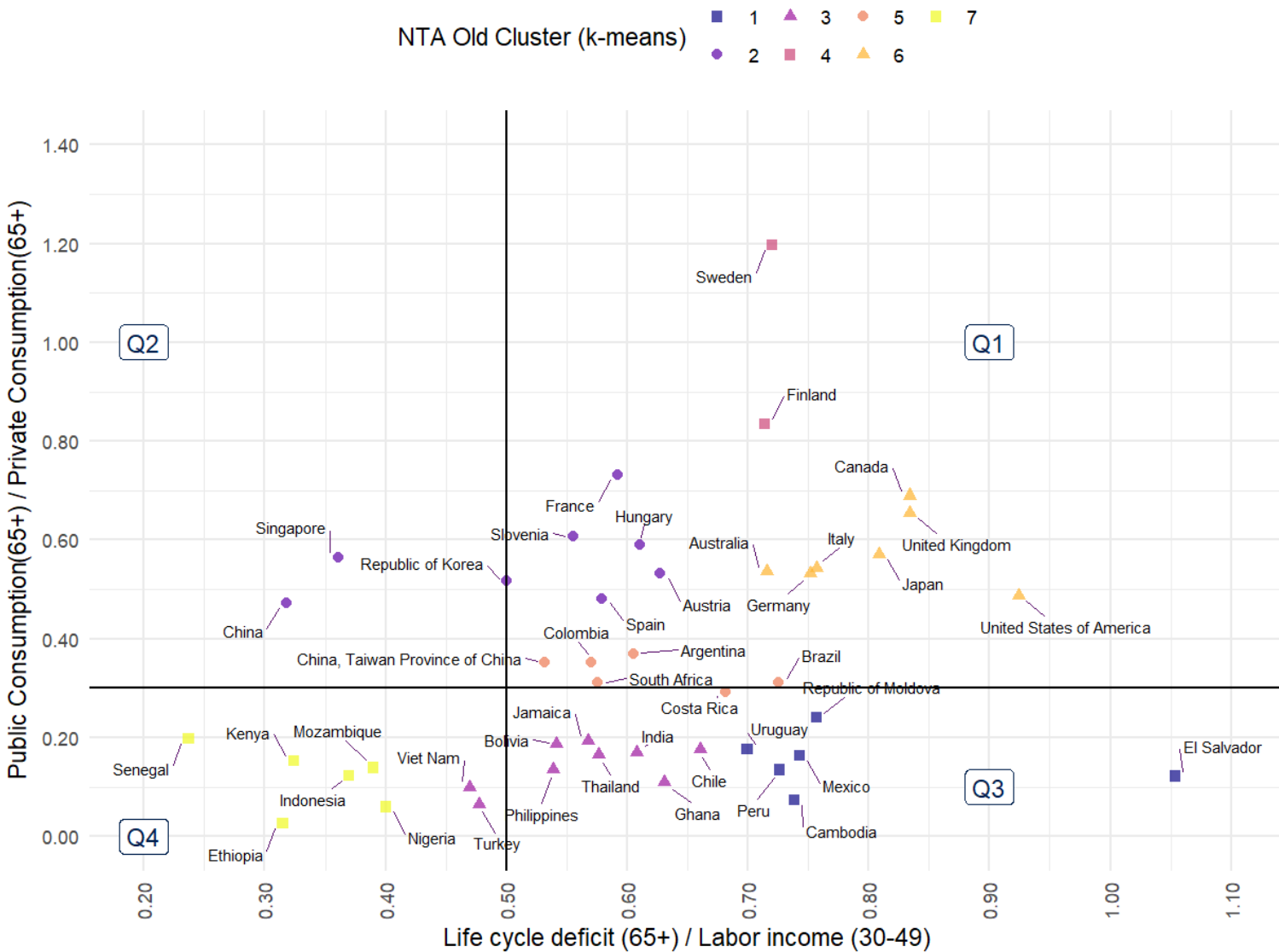
Association between demographic and NTA dimensions: **older ages**
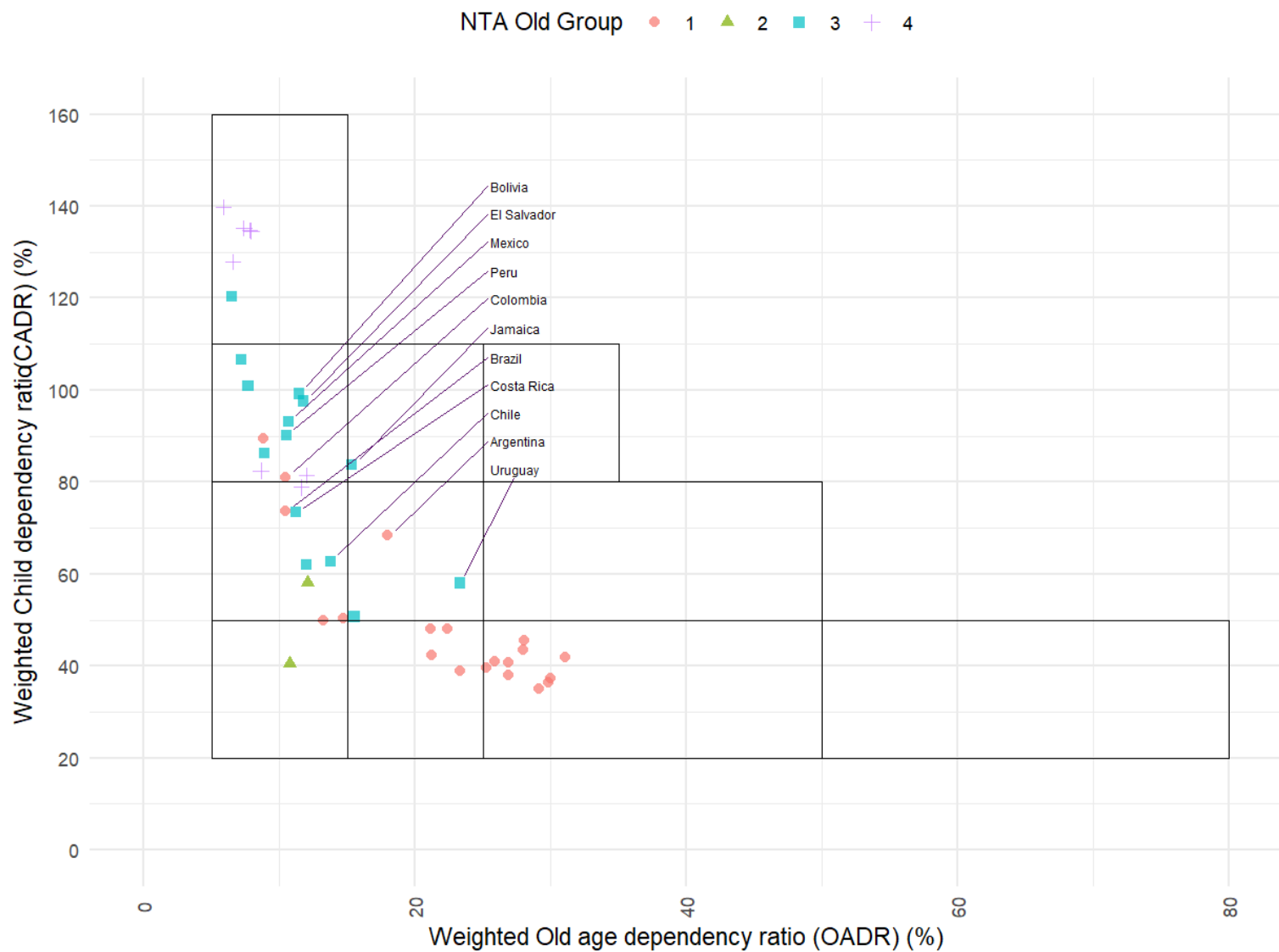
Sustainable Development Goals

Data & Methods

- For every SDG (1 to 17), it was obtained the list of targets and indicators defined by the United Nations

- Use two datasets: Global SDG Indicators Database and OCDE

- Pre-selection of 33 indicators from three rounds of discussion (researchers and project coordinator)

- 11 indicators were kept in the final list

  - Avoid the inclusion of indicators that a priori are only distantly connect to young and old-age related measures

  - Keep the methodology simple: avoid adding too many indicators

  - Include only indicators for which data were available for many countries

  - Exclude gender-related indicators since NTA measures only by age (not intra-age)

  - Exclude indicators of government spending to avoid redundance with the NTA measures

Data & Methods

Children and the Youth	Elderly
1.1.1Proportion of population below the international poverty line	1.1.1Proportion of population below the international poverty line
3.8.1 Coverage of essential health services	3.8.1 Coverage of essential health services
OECD: Poverty ratio (0-17 years old)	OECD: Poverty ratio (66 years or more)
2.2.1 Prevalence of stunting	
8.6.1 Proportion of youth (aged 15–24 years) not in education, employment or training; only female	
4.1.1 Proportion of children and young people at the end of primary achieving at least a minimum proficiency level in **mathematics**	
4.1.1 Proportion of children and young people at the end of primary achieving at least a minimum proficiency level in **reading**	
3.7.2 Adolescent birth rate (aged 10–14 years; aged 15–19 years) per 1,000 women in that age group;	
3.b.1 Proportion of the target population covered by all vaccines included in their national programme;	

# Association between demographic NTA dimensions and **Poverty (66+)**
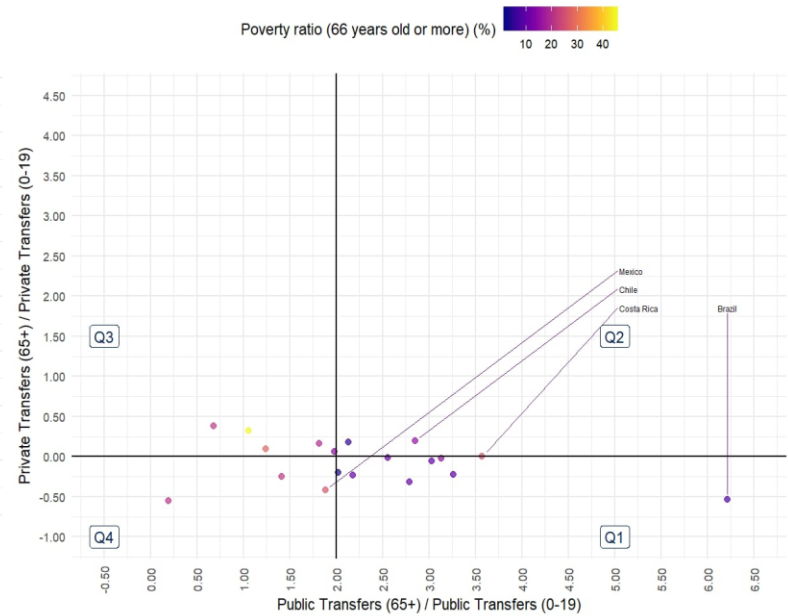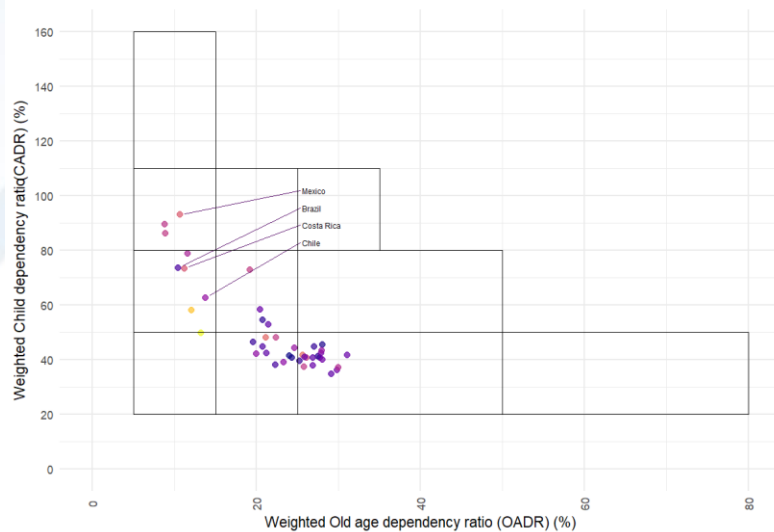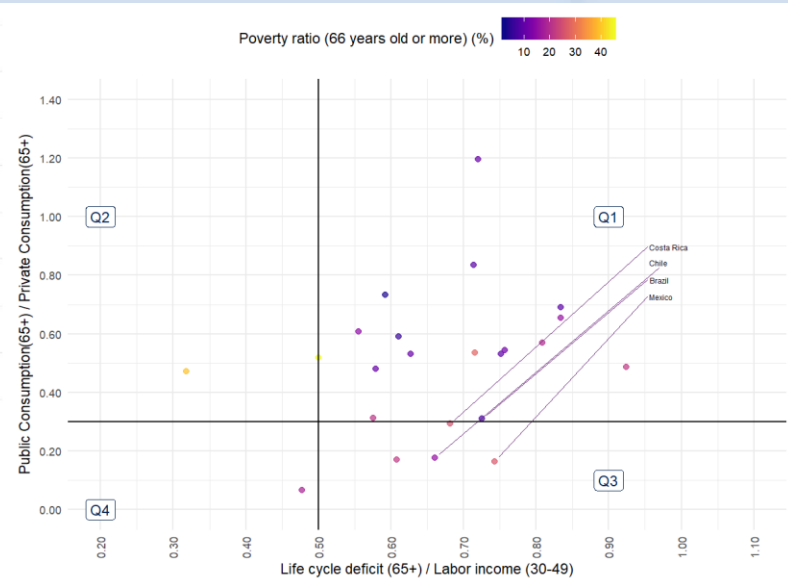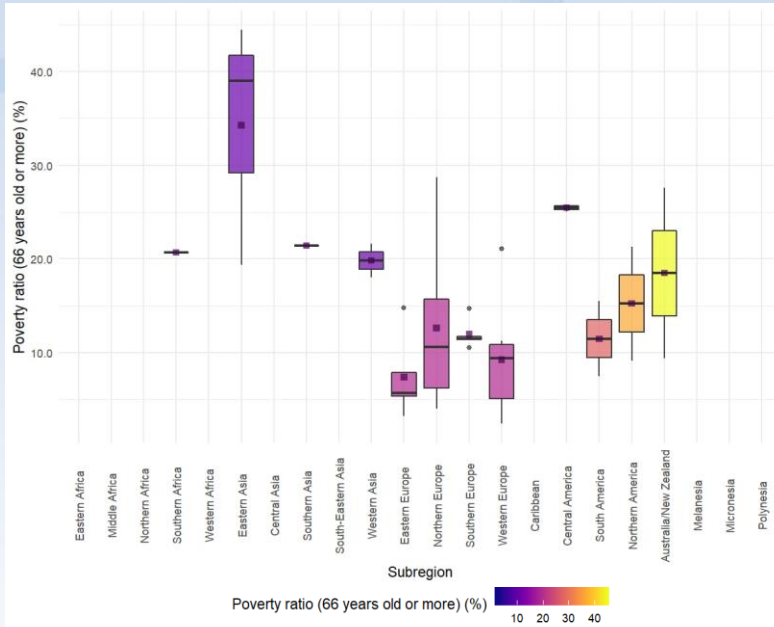
Summary of SDG indicators and associations with demographic and NTA measures

| SDG indicator	Prevalence rates (median)						Associations		
	Latin America and the Caribbean	Africa	Asia	Europe	Northern America	Oceania	Stages of the demographic transition	Public/private consumption (ages 0–19 or 65+)	Intergenerational relations (ages 65+/0–19)
1.1.1 Poverty rate	6.8	42.0	5.5	0.3	0.6	11.8	Negative	Negative	Not significant
OECD: Poverty rate (ages 0–17)	25.4	32.0	23.9	11.3	18.0	13.2	Negative	Negative	Not significant
OECD: Poverty rate (ages 65+)	20.3	20.7	21.5	10.5	15.2	18.5	Negative	Not significant	Negative
3.8.1 Universal health coverage (UHC) service coverage index	73.0	44.0	66.0	76.0	80.0	58.0	Positive	Positive	Positive
3.b.1 Immunization	92.0	79.8	94.3	94.9	93.1	84.2	Positive	Positive	Not significant
2.2.1 Prevalence of stunting	13.2	34.4	19.7	8.5	2.9	8.1	Negative	Negative	Not significant
4.1.1 Proficiency in mathematics	73.7	62.8	72.6	91.9	N/A	95.6	Positive	Positive	Not significant
4.1.1 Proficiency in reading	75.7	70.3	72.3	94.5	N/A	94.6	Positive	Positive	Not significant
3.7.2 Adolescent birth rate	64.7	103.3	26.1	14.8	24.0	43.3	Negative	Negative	Not significant
8.6.1 Proportion of youth (aged 15–24 years) not in education, employment or training; female only	27.2	31.2	27.3	12.5	15.8	29.0	Negative	Negative	Not significant

Challenges and Opportunities

CADR and OADR:
World Regions, 2020-2100
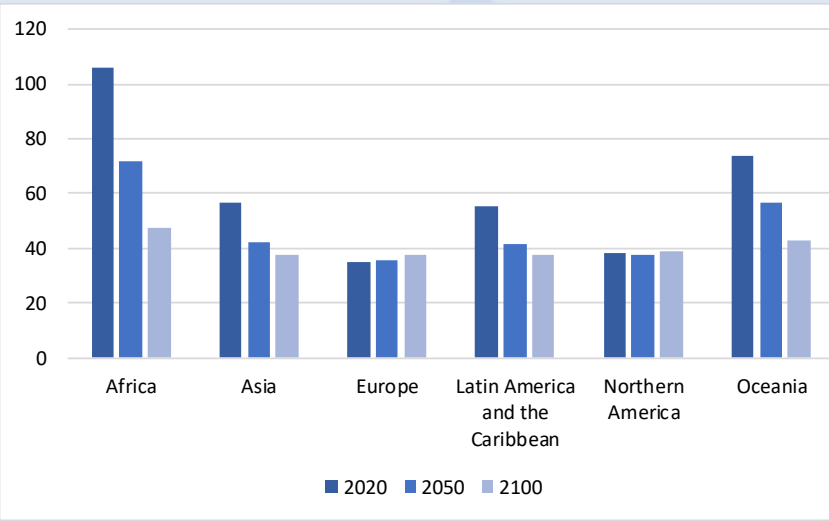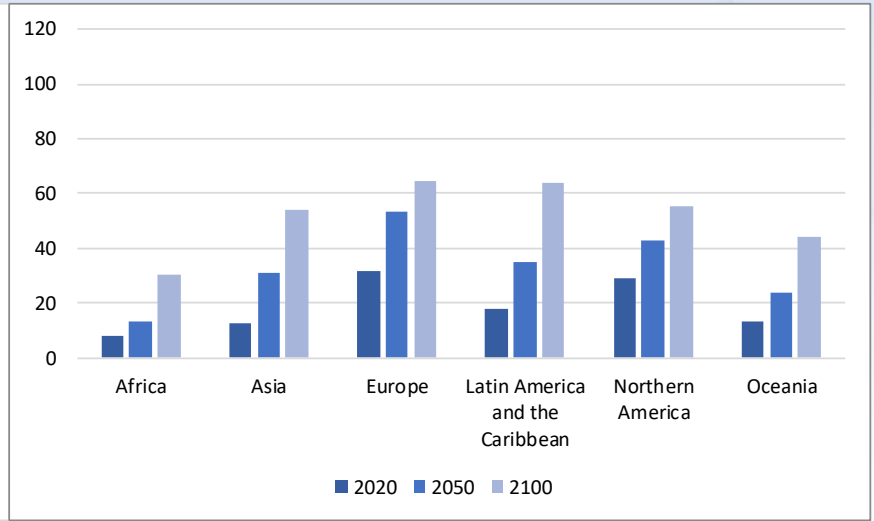
Effects of demographic changes on the life cycle deficit, selected LAC countries, 2020-20250

Country	Variation in the LCD		Variation in the LCD (if children's aggregate consumption is inelastic)		
	2050/2020	% year	2050/2020	% year	% total increase in per capita consumption of children
Argentina	1.23	0.69	1.25	0.75	3.35
Bolivia	1.08	0.25	1.08	0.25	0.50
Brazil	1.36	1.03	1.55	1.45	33.22
Chile	1.65	1.66	1.91	2.16	25.78
Colombia	1.17	0.52	1.36	1.03	34.94
Costa Rica	1.41	1.16	1.59	1.54	26.83
El Salvador	1.12	0.37	1.24	0.71	38.08
Jamaica	1.27	0.80	1.63	1.62	36.83
Mexico	1.20	0.62	1.30	0.87	19.43
Uruguay	1.41	1.15	1.47	1.27	17.18

NTA measures by population subgroups (gender and SES)

Country	YL (30-49) Men/Women	LCD (0-19) High/Low SES*	LCD (65+) High/Low SES*
Argentina		1.45	1.10
Brazil	2.00	1.64	2.07
Chile		3.32	2.64
El Salvador	1.69	2.34	1.93
México	1.96	3.25	2.96
Uruguay	1.71		

*Different SES measures

Recommendations

There is no guarantee that countries in the first stages of the demographic transition, after becoming older, will be wealthier (offer larger consumption for children and elderly) and become more developed (obtain better SDG outcomes). Therefore:

- 1st dividend is key for some African, Asian and LAC countries

- Institutional reforms are crucial: duration of the 1st demographic dividend may be too short for countries to overcome all constraints.

- Investments in children/youth must increase to improve productivity but also to reduce inequalities

- Investments in children/youth need to improve before population ages

- Public transfers are critical to improve children's wellbeing. At older ages, different combinations of asset-based reallocations, public and private transfers may work well as far as they reduce inequality, fiscal issues and improve elderly wellbeing

- For populations already in the second dividend (like many in LAC), higher productivity, redistribution policies, gender equity, lower inequality and better fiscal policies are mandatory to deal with rapidly aging population and avoid setbacks with respect to human rights, social advancements, and health gains

There are many (basic) methodological issues that hinder the study of the association of DT, NTA and SDGs:

- Cross-sectional data precludes one from tracing real trajectories of DT/NTA/SD

- The NTA project has made important contributions to the study of the associations between economic and demographic variables.

  - Now, it is time to move (faster) beyond inter-age relations to intra-age analysis. Initial research has shown very different patterns of generational economy for groups living in the same countries.

  - Differences within countries (SES, gender, geographic) may be larger than between countries.

  - Social mobility may affect the national transfer accounts as strong as population aging

- The SDGs list of indicators is incomplete:

  - There are no data by age and SES measures. There are some data by gender

  - Many indicators are not good measures of development in middle and high income countries

  - The use of regional indicators is crucial, but data still need to produced

  - Datasets from different institutions need to harmonized

  - Necessary to improve inter and intra regional, and intra country comparisons