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"CENTRAL BANKS, FINANCIAL MARKETS AND INEQUALITY"

The distribution of household income in the framework of national accounts: the Italian experience, 2015-2020

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Istat | DCCN and DCSW

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Distributional estimates in the framework of national accounts (NA): the context

○ Stiglitz – Sen – Fitoussi commission 2009 report: distributive measures consistent with NA could provide important contributions to the analysis and contrast of inequalities.

○ Since 2011, OECD-Eurostat Expert Group on Disparities in a National Accounts Framework (EG DNA):
  • methodology for compiling distributive estimates of income, consumption and savings consistent with NA
  • coordinated exercises of production of these estimates
  • publication of experimental estimates on OECD and Eurostat websites since December 2020

○ G20 Data Gaps Initiative – second and third phases:
  • second phase, Recommendation II.9: Household distributional information
  • third phase, Recommendation 8: Distributional results on income, consumption and saving in line with NA totals

○ SNA update:
  • a specific section on the compilation of distributional results

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The Italian estimates of household income distribution in the framework of NA

○ 2011, 2015: Istat participates in the first two exercises organized by the EG DNA.

  • Experimental estimates of household income distribution for 2008 and 2011

○ 2019-2020: Istat participates in the third exercise organized by the EG DNA:

  • Experimental estimates of household income distribution for 2015-2017, published on the OECD and Eurostat websites in December 2020

○ 2021-2023:

  • Revision of distribution estimation methods for some household income components and time series extension up to 2020

  • Experimental estimates of household income distribution

    • for 2015-2018, published on the Eurostat website in July 2022

    • up to 2020, will be published on the Eurostat website in June/July 2023

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The EG DNA method and Istat implementation 1/8

○ Distributional estimates in line with NA are obtained using as much as possible the distribution of household income components in a micro source (mainly, a household survey), as long as the components are defined similarly in the micro source and in NA.

○ 5 steps:

1. NA totals are adjusted to exclude any amount that does not pertain to resident private households.

2. the definitions and methodologies used to estimate the various income components in the NA and in the available micro source are compared, to find in the micro source a variable (or linear combination of variables) defined as an income component in the NA and with a similar value, for as many income components as possible

3. the income components for which such a correspondence with a micro source variable cannot be found are imputed. Furthermore, all the distributed components are scaled to the NA totals adjusted for the population differences.

4. households are clustered into groups, on the basis of their disposable income and socio-demographic characteristics (household type, main source of income).

5. inequality indicators are estimated.

The household disposable income in the National Accounts 2/8

o In the Italian national accounts, the household sector is divided into two sub-sectors to separately represent the consumption and production activities carried out by households.

- Two complete sets of accounts for the households as consumers sub-sector and the households as producers sub-sector are compiled and disseminated at the national level.

- It is thus possible to measure the disposable income allocable to consumption or saving by households as consumers and to more accurately calculate their gross saving rate.

o Specificities to adequately represent the Italian production system:

- significant presence of very small-unincorporated enterprises

  - therefore, an income flow distributed by the very small-unincorporated enterprises included and corresponding to the remuneration for work carried out in the enterprises by the owner or other family members

- presence of self-employment in small and medium corporations and quasi-corporations

  - a specific distributed income of corporations, other than dividends and withdrawals from the income of quasi-corporations, to properly represent the remuneration of work performed by partners in these enterprises.

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The micro source – Eu-Silc 3/8

- Eu-Silc (European Union Statistics on Income and Living Conditions) is a cross-sectional and longitudinal sample survey, coordinated by Eurostat, based on data from the European Union member states.

- Eu-Silc provides data on income, poverty, social exclusion and living conditions in the European Union.

- It represents the first example at European level of a harmonized survey with the aim of producing income data at individual and household levels, both net and gross of taxes and social security contributions.

- The harmonized definition of income adopted in Eu-Silc is the internationally accepted one based on the economic definition of "disposable monetary income", in line with most of the recommendations contained in the Canberra manual (2011).

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The micro source – the Italian version of Eu-Silc 4/8

○ The Italian version of Eu-Silc is based on the combined use of administrative and survey information on income, made possible by the record linkage of individual income data collected by sample survey and administrative data sources (social security and fiscal agency registers).

○ The estimation of net income in It-Silc is achieved through a sequence of interconnected phases:

- definition and reconciliation of individual income profiles, captured with a multi-source strategy (survey data and administrative registers)

- harmonization of information content between the two kinds of sources

- editing and imputation procedures with the use of external auxiliary information

- setting/alignment of income levels for each distinct economic component.

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The reconciliation of micro macro income aggregates 5/8

o The approach followed in estimating Italian NA is very analytical, mostly micro-based and, where relevant, separate estimates for the observable and unobservable parts (under-reporting, undeclared labour input, illegal activities) for each component of household disposable income are developed.

o The granularity of national accounts estimates make it possible to take full advantage of the information details of micro sources, enabling the identification of all income components defined at the macro level that can be directly compared with micro information.

o In general, the underlying consistency of the NA and EU-Silc reference regulations ensures the consistency of the methodological approaches adopted and the absence of incompatible definitional differences.

o A mapping work at a very high level of disaggregation identified the components of household disposable income that were directly comparable and those that were comparable after eliminating definitional, classification, or implementation differences using the information available in the NA and the corresponding micro indicator.

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The reconciliation of micro macro income aggregates 6/8

○ For the income components for which differences could not be resolved because the necessary information was only available in one of the two domains, it was still possible to understand the reasons for the discrepancy between the macro and micro estimates.

○ In order to properly assess the level of coverage of the macro estimate, it was necessary to isolate in the NA system all components for which micro indicators are not available.

○ In addition, components included in the micro indicators that, for the reference standards, have to be classified in other aggregates were identified at the macro level and treated appropriately in the distributional estimation procedures.

○ The distribution of household disposable income is obtained summing up all the distributed components.

The reconciliation of micro macro income - the case of wages and salaries 7/8

o In Eu-Silc, the gross employee cash or near cash income (variable PY010G) is the sum of net income, personal income tax and employee's social security contributions.

o The employer's imputed social contributions relating to sick pay for the first three days of absence, in the case of Italy, are up to now included in the remuneration of employees.

o In order to calculate an aggregate corresponding to the NA wages and salaries, the non-cash employee income (PY020G) was added to PY010G.

o Since the PY010G variable includes the wage arrears received in the reference year, this component has been separated from the total.

o Furthermore, the gross income received by the cooperative members and the amounts of the job vouchers which in It-Silc are included in the income from self-employment have been added to the employee income, as in NA they are classified as wages and salaries.

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The reconciliation of micro macro income aggregates - the case of wages and salaries 8/8

National Accounts	SILC
Wages and salaries (D.11)	
Wages and salaries received by resident households from resident and non-resident institutional units	Gross employee cash or near cash income (PY010G) and Gross non-cash employee income (PY020G)
Adjusted for: - wages received by workers living in institutional households and irregular foreigners, to be excluded	Adjusted for: - cash-based recorded arrears or contract renewal, to be excluded - wages of cooperative members on the payroll, to be included - vouchers for occasional work services, to be included
Differences not reconciled: - some categories of wages in kind not included SILC data (only NA figure) - the amounts of wages paid temporarily by employers to their employees in the case of sickness, maternity, industrial injury, disability, etc., that are treated as other social insurance non-pension benefits included in SILC data (only NA figure)	

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Micro-macro gap allocation methods 1/3

○ The EG DNA guidelines suggest four methods to distribute income components across households:

- Method A (direct method): micro source totals are scaled up or down so their totals match NA totals; the distribution of the gap is made proportionally to the micro values of same indicator.

- Method B (indirect method based on proxies): a missing or unreliable micro component is estimated using the distribution of a different component as a proxy, i.e. it is assumed that the considered component can be distributed proportionally to a distinct and related component.

- Method C (indirect method based on external data): a missing or unreliable micro component is estimated using the distribution of exogenous information as a proxy, i.e. it is assumed that the component considered can be distributed proportionally to an external, distinct and related component (e.g. economic information from other sources).

- Method D (invariant method): the remaining components are distributed in proportion to the total of all the NA components distributed with the previous methods; as a result, these components have no impact on the overall distribution of household disposable income.

Micro-macro gap allocation methods 2/3

Income components distribution by method – years 2018 – 2020 (percentage composition)

	Method A	Method B	Method C	Method D
2018	85.1	2.8	2.6	9.5
2019	85.3	3.0	2.5	9.3
2020	85.9	3.2	2.3	8.5

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Disposable income

	Received — Consumer households	Received — Producer households	Paid — Consumer households	Paid — Producer households
Operating surplus	Imputed rents main dwellings gross of FISIM	Regular rents	FISIM on mortgages	
	Imputed rents other dwellings	Irregular rents		
Mixed Income	Own account production: agricultural	Non-observed components: Illegal activities		
	Own account production: major maintenance	Non-observed components: under-reporting		
		Non-observed: undeclared self-employment		
		Observed components		
Compensation of employee	Wages and salaries			
	Employers' actual social contributions			
	Employers' imputed social contributions			
Property income	Interest		Interest	
	Dividends			
	Withdrawals from income of quasi-corporations: Non-observed components			
	Withdrawals from income of quasi-corporations: Observed components			
	Other distributed income of corporations: Non-observed components			
	Other distributed income of corporations: Observed components			
	Other investment income			
	Rents		Rents	
Current taxes			Current taxes on income, wealth etc	Current taxes on income, wealth etc
Social benefits other than STiK	Old-age, survivors', disability, social pension; unemployment severance pay; other severance pay; unemployment benefits, cig (short term working allowance), other; family allowances; social exclusion (tax bonus)		Employers' actual social contributions	Net social contributions
			Employers' imputed social contributions	
			Households' actual social contributions	
	Social exclusion (other)		Social insurance scheme service charges (-)	
Other current transfers	(Non-life) insurance claims		Net premia (non-life insurance)	
	Miscellaneous current transfers		Current transfers paid to other households	
	Current transfers received from other households		Current transfers paid to AP and NPISHs	
	Current transfers received from from AP, NPISHs, RoW		Current transfers paid to RoW	

Legend: A Method | B Method | C Method | D Method

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Social Transfers in Kind (STiK) distribution: estimation method 1/3

- STiK are:
  - individual services provided to households for free or at prices that are not economically significant
  - they consist mainly of STiK on health (56% of STiK on average over the years 2015-20) and education (30%) services.

- The EG DNA guidelines suggest two approaches for the estimation of the STiK distribution:
  - the actual value approach, according to which values are allocated to households on the basis of the actual transfers they receive;
  - the insurance value approach, according to which values are allocated on the basis of an insurance premium equivalence households would have to pay to obtain the same protection.

- For Italy, as for most countries in Zwijnenburg et al. (2021), insurance value approach for STiK on health and actual value approach for STiK on education are used.

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Social Transfers in Kind (STiK) distribution: estimation method 2/3

o STiK on health:

- estimates by the Ministry of Economics and Finance of the per capita expenditure on health services by the general government by type of service, year, age and sex of the beneficiary were imputed to the It-Silc respondents' samples, using the information available on age and sex of the household members.

- proportional correcting factors to ensure that the grossed up figures matched the NA estimates of total general government expenditure on health, adjusted to exclude the share pertaining to institutional households.

- NA estimates of total NPISHs expenditure on health, adjusted to exclude institutional households, distributed proportionally to the adjusted general government expenditure on health.
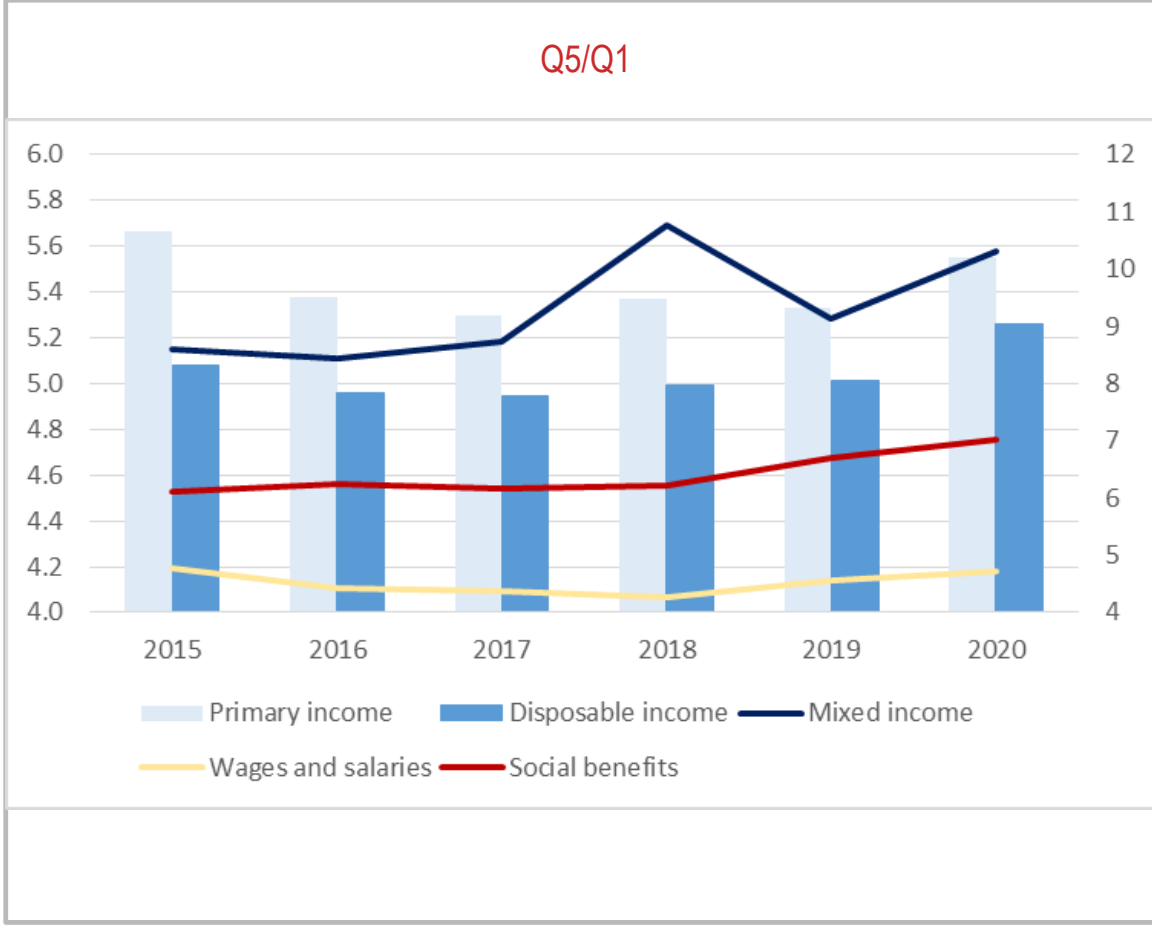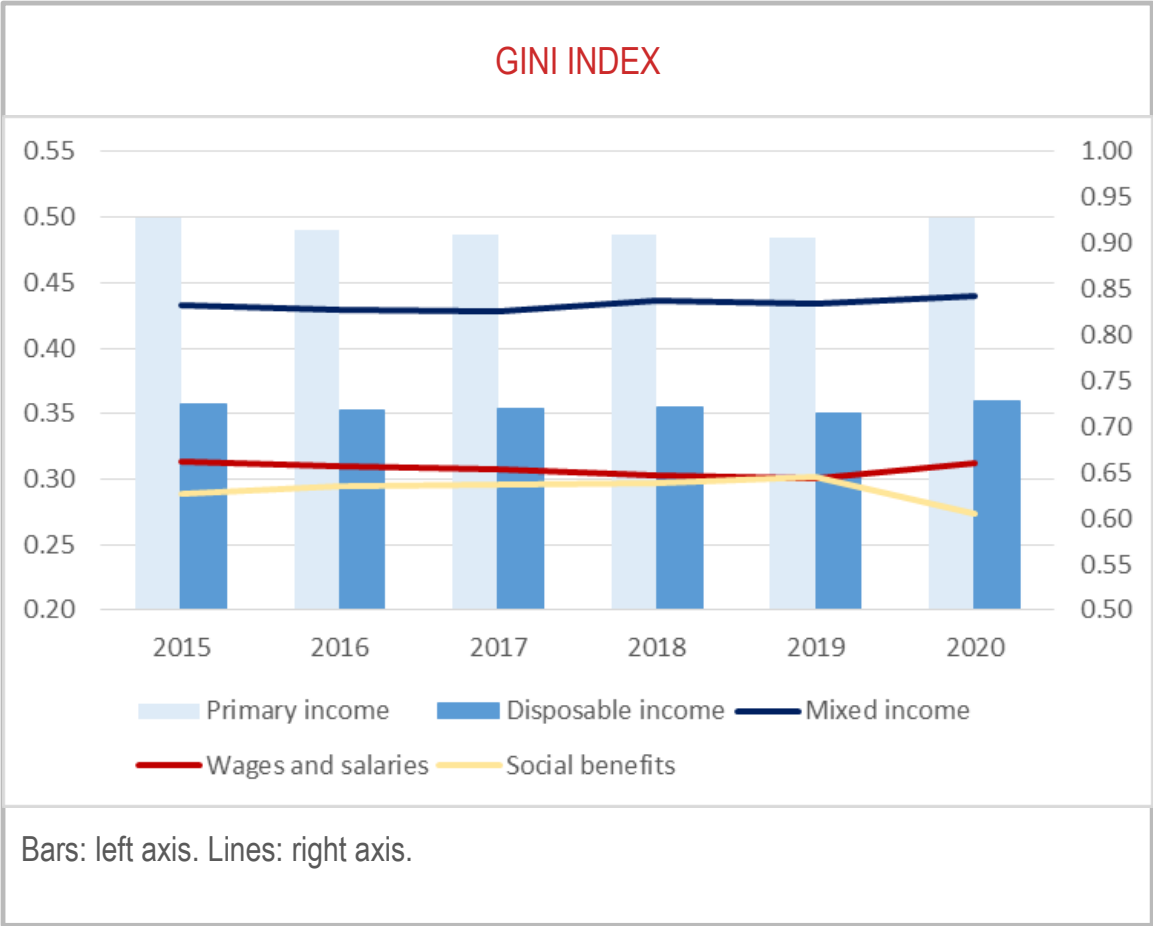
o STiK on education:

- per capita expenditures by general government by year and education level:

  - NA estimates of the general government expenditure on education for each year and education level (adjusted to exclude the share pertaining to institutional households)

  - divided by number of students enrolled in public schools (by year, school level and geographical area) and universities (by year and geographical area) by the Ministry of Education, University and Research.

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Social Transfers in Kind (STiK) distribution: estimation method 3/3

○ STiK on education (continued):

- these per capita expenditures were imputed to the It-Silc respondents' samples, using the information available on the enrollment in schools or universities of the household members.

- proportional correcting factors to ensure that the grossed up figures matched the adjusted NA estimates of total general government expenditure on education.

- a residual 6% of general government expenditure on education (other types of education and auxiliary services to education) distributed proportionally to the general government expenditure on education for schools and university.

- NA estimates of total NPISHs expenditure on education, adjusted to exclude institutional households, distributed proportionally to the adjusted general government expenditure on education.

○ Other STiK (14% of total STiK):

- the NA estimates of total general government expenditure on other STiK, adjusted to exclude institutional households, were distributed proportionally to the total expenditure by general government and NPISHs on education and health.

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# Gini index and Q5/Q1 on household disposable income and main components – 2015-2020

GINI INDEX

Q5/Q1

Bars: left axis. Lines: right axis.

Legend (both charts): Primary income, Disposable income, Mixed income, Wages and salaries, Social benefits

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Gini index and Q5/Q1 on household disposable income, STiK and adjusted disposable income – 2015-2020

Bars: left axis. Lines: right axis.
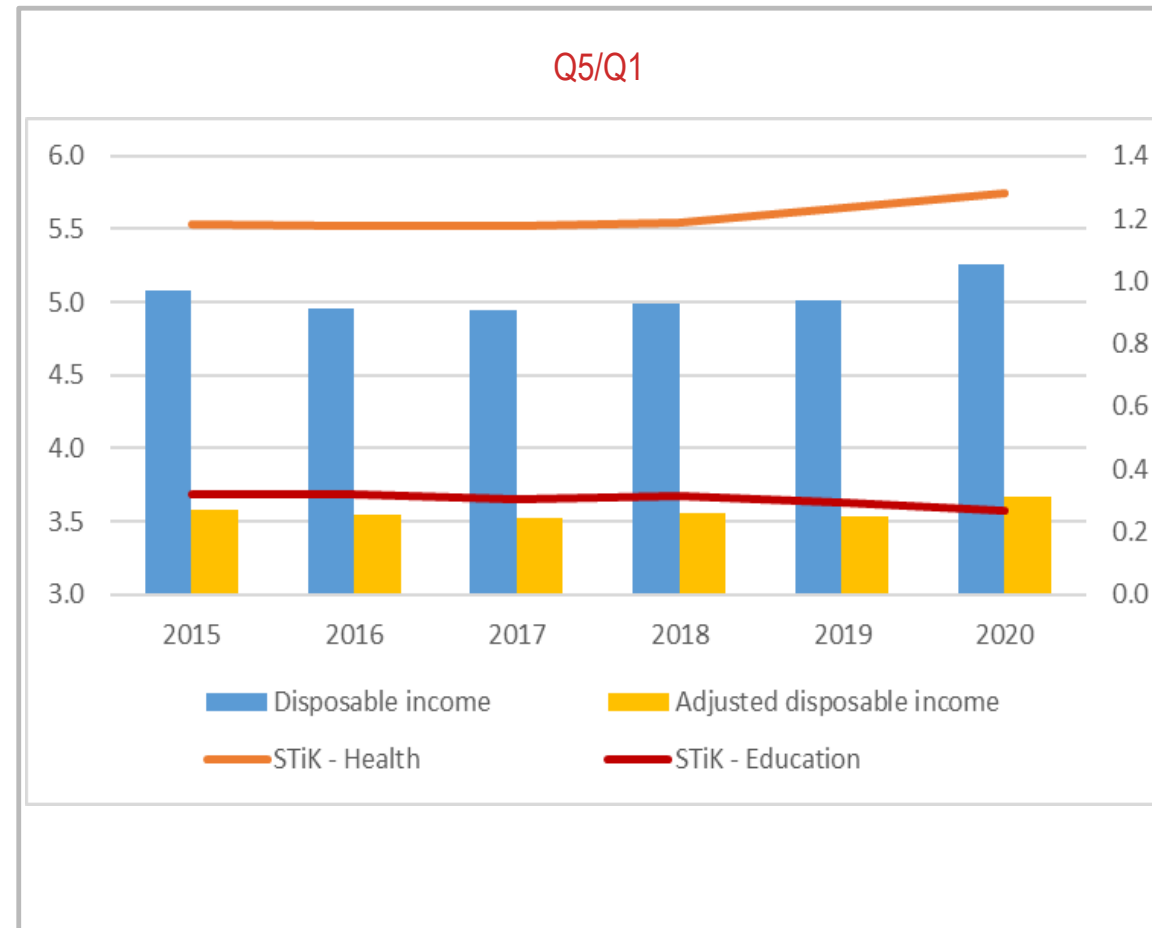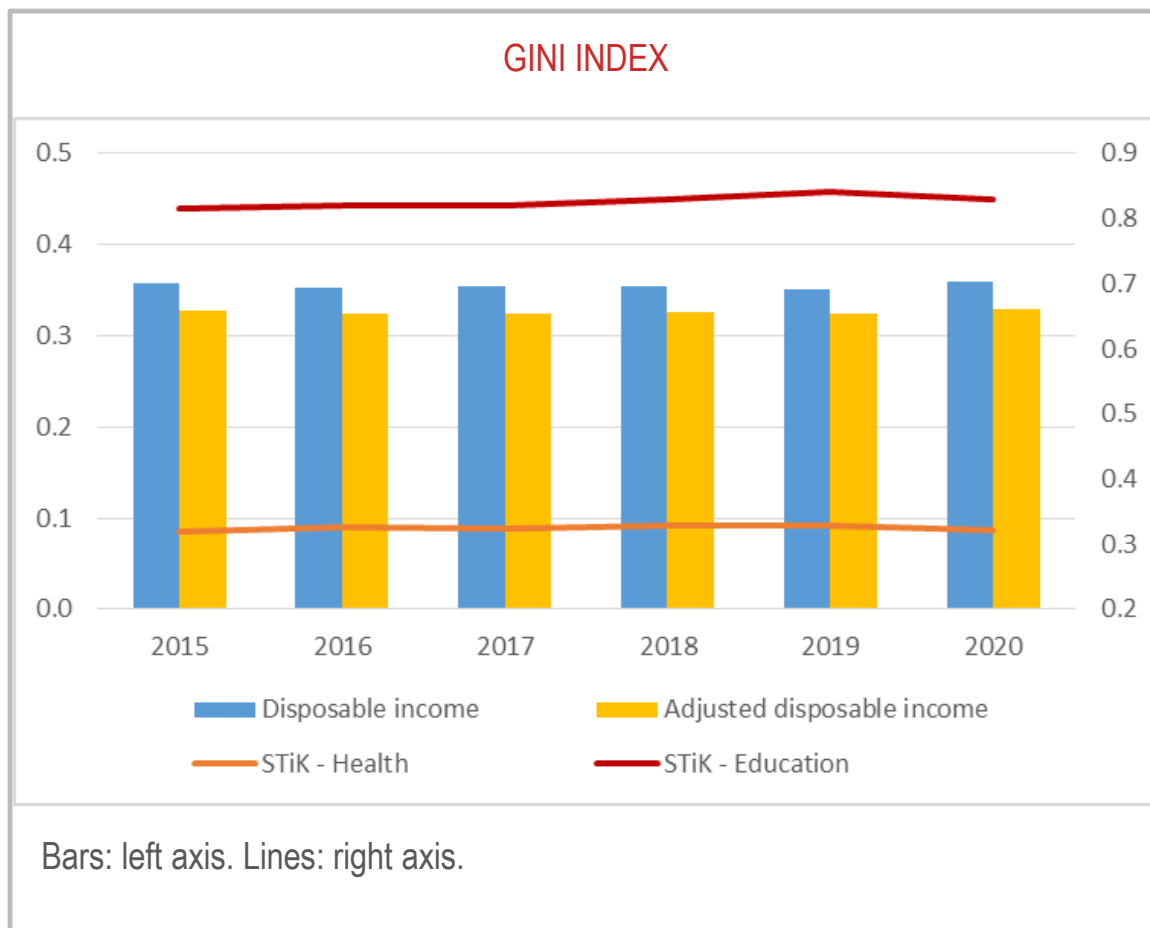
Household distribution by quintile and type of household - 2019 (percentage composition)
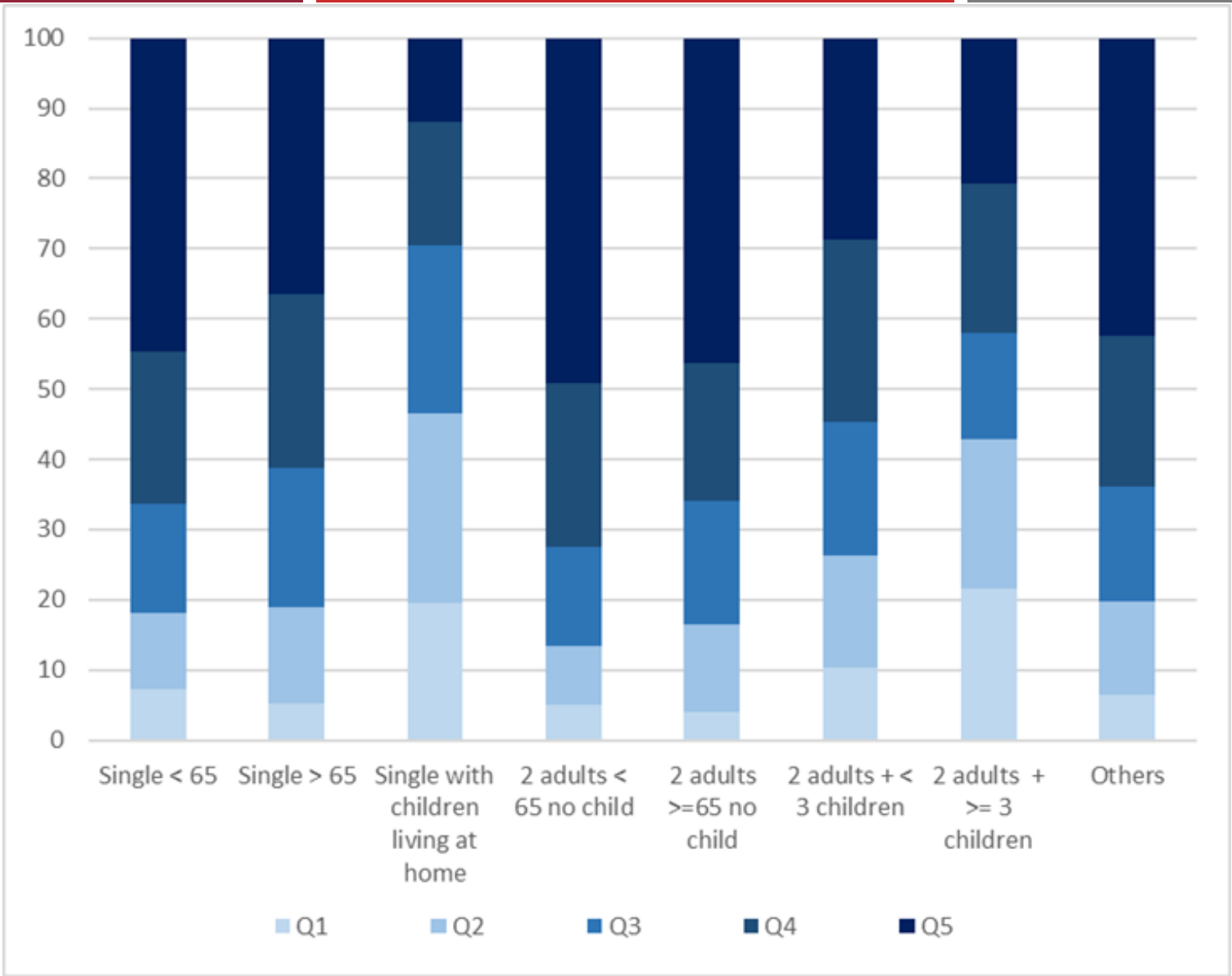
The 2020 Covid-19 crisis: policies implemented by the Italian Government (estimates from It-Silc)

o Wage subsidies (including the Wage Guarantee Fund):

- • 6.04 million recipients, around 37.4% of the employee workforce of the private sector, with a 14-fold increase over 2019

- • 1,490 euros net of taxes per recipient (total net social spending on these subsidies increased 10 times over 2019).

o Basic income (Reddito di Cittadinanza):

- • over 1.3 million households (5.3% of all households, from 3.8% in 2019)

- • 5,216 euros per household (from 3,980 euros per year in 2019)

- • 57.8% in the first income quintile, and 90.3% below the fourth quintile.

o For those not covered by the Wage Guarantee Fund because not employed or with a temporary contract, a one-off 600-1000 euro bonus:

- • 4.3 million recipients, of which 67.5% self-employed workers and 22.4% employees

o Emergency income (Reddito di Emergenza):

- • 330 thousand recipients (2,085 euros per household); 54.8% in the first income quintile, and 95.4% below the fourth quintile.

o Babysitting bonus: 765 thousand recipients (1,140 euros per capita).

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Estimates of the distributional effects of the Covid-19 crisis in the National Accounts framework 1/2

Household disposable income and its main components by income quintile – ratio between 2020 and 2019 values
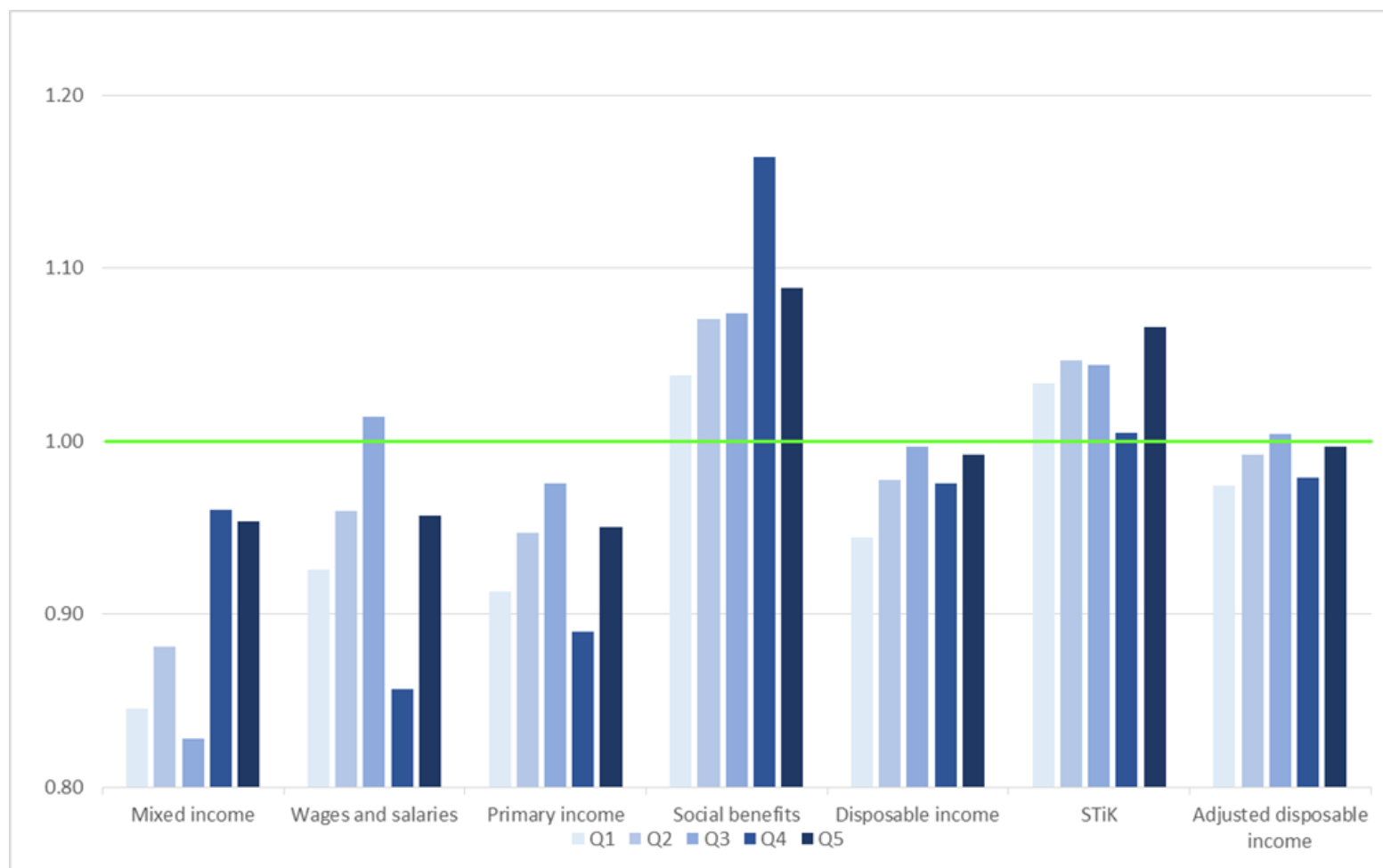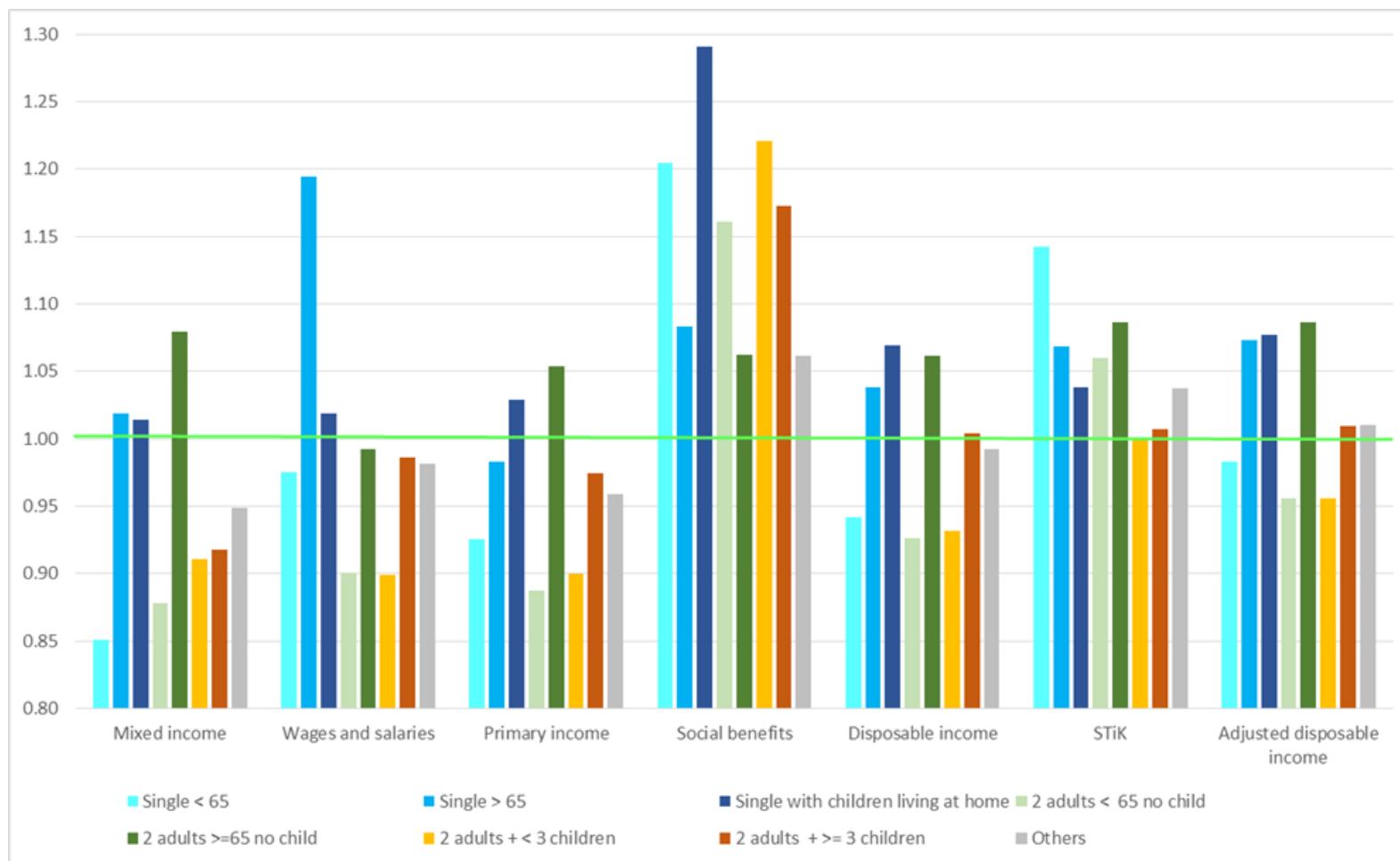
Estimates of the distributional effects of the Covid-19 crisis in the National Accounts framework 2/2

Household disposable income and its main components by household type – ratio between 2020 and 2019 values

THE DISTRIBUTION OF HOUSEHOLD INCOME IN THE FRAMEWORK OF NATIONAL ACCOUNTS: THE ITALIAN EXPERIENCE, 2015-2020 | CAVALLI, CONSOLINI, CUICCHIO, DONATIELLO AND SORRENTINO

Way forward 1/2

○ Improvements to the methods, for income components affected by significant measurement problems in the household survey or outside the scope of Eu-Silc. In particular:

- property income

- income components related to the non observed economy

- distribution of some components among more affluent households, for example via a Pareto tail distribution.

○ Sensitivity analyses to assess the impact of different assumptions or allocation methods, in particular, for the just mentioned income components and distribution tails.

○ National publication, referring to the sub-sector of households as consumers only.

○ Estimation of the distribution of household consumption (currently in progress at Istat).

○ Joint distribution of income and consumption and distribution of saving rates.

○ Analyses of the joint distributions of income, consumption and wealth, in cooperation with the Bank of Italy, in light of their estimation of wealth distribution in the context of the Expert Group on Distributional Financial Accounts.

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Way forward 2/2

- In coherence with the new G20 Data Gaps Initiative on distributional results on income, consumption and saving in line with NA totals:
  - improvements to timeliness:
    - increase in timeliness of the Italian version of Eu-Silc
    - nowcasting techniques
  - increases in the granularity of the estimates, in particular to income deciles and top percentiles.
- Increases in granularity also to improve the alignment with other domains that will likely be included in the sections on well-being and sustainability in the SNA update.

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