

An index of intergenerational justice: main concepts and preliminary evidence from the Age-It Research Program

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Abstract

Objectives: Aging reshapes the balance between younger and older generations within the population. These demographic shifts have significant implications for economic and environmental resource allocations and the transformation of social and political status and individual rights. To explore these dynamics, we present findings from Spoke 7 (*Cultural and Political Dimensions of Ageing Societies*) of the Age-It Research Program, which has developed a novel Index of Intergenerational Justice.

Methods: The Index of Intergenerational Justice, applied to a broad sample of European countries, captures three key dimensions of justice: distributive fairness, social (status and relational) equality, and political equality. We focus on differences across age groups, rather than across cohorts, due to well-documented challenges in direct cohort comparisons. The distributive fairness dimension covers economics (relative poverty, unemployment, permanent contracts, wages), health (unmet medical needs), and the environment (environmental risk exposure). The social equality dimension captures social isolation (measured through leisure activities, internet access, social contacts, and close relationships), discrimination, and mental well-being. Finally, the political equality dimension considers political perceptions, political engagement, and political representation.

Results: Preliminary findings reveal substantial differences across age groups in the distributive fairness dimension. A cluster of countries appears to favor older adults, while another favors younger adults. By contrast, in the social equality dimension, nearly all countries tend to favor young adults.

Discussion: The Intergenerational Justice Index provides a valuable tool for assessing fairness across age groups. By highlighting disparities, it can inform and support public policies aimed at fostering more equitable relationships between generations.

Keywords: Fairness, Redistribution, Isolation

Aging modifies the age structure of the population: the share of older adults increases while the proportion of young people shrinks. These demographic phenomena have important consequences for how economic and environmental resources are allocated in society and on how social and political status and individual rights are remodeled and redefined. The demography shapes the magnitude of the quest for resources by the different age groups, as well as their social status and political relevance. Positive theories, such as political economics (Persson & Tabellini, 2002), analyze how economic and political determinants affect the allocation of economic resources and political power. Normative theories deal instead with: (a) the optimal allocation (public economics); and (b) the just distribution (political philosophy) of these resources.

This paper aims to provide a useful instrument to analyze how resources are allocated across age groups and to assess the fairness of this allocation. We propose an index of intergenerational justice and present an initial application to a large

sample of European countries: Austria, Belgium, Croatia, Cyprus, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, and Sweden.

The index aims to measure how people who belong to different age groups are treated in terms of the distribution of resources, social status, and political power. The provision of an index of intergenerational equity represents a crucial instrument to evaluate how public policies affect the different age groups in society, which becomes particularly relevant during a demographic dynamic that reduces the active population while increasing the older population, who tend to be welfare state recipients. The construction of the index builds on the work of Spoke 7 (*Cultural and Political Dimensions of Ageing Societies*) within the Age-It Research Program, which developed the normative framework for the index and examined multiple aspects of political conflict across generations. The index has the potential to assist both policymakers and citizens

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in making informed and equitable decisions, thereby helping to address intergenerational imbalances among different age groups in society.

For full details about the overall research program of Age-It, see [Vignoli et al. \(2025\)](#).

Main concepts and clarifications

Building an index of intergenerational (in)justice requires some preliminary conceptual definitions and clarifications. A first crucial clarification concerns what we mean by social justice. In a very general sense, encompassing most if not all normative theories of social justice, a society is just when all its members are treated with equal consideration and respect. For all social agents to be treated with equal consideration and respect, three dimensions of justice should be considered: economic conditions, status and social relations, and politics. Henceforth, to make a society just, three goals should be pursued: (1) distributional fairness, (2) status and relational equality, and (3) political equality. These three goals are independently defined, though the three dimensions have an impact on each other. Our index will consider all three dimensions, thus improving on the existing indexes that focus exclusively on distributional matters.

A second clarification concerns the scope of the index, which will be limited to *overlapping generations*, who are currently alive, thus leaving aside the much-debated issue of justice between present and future, not yet existent generations. Then, there is a conceptual problem regarding how to understand the term “intergenerational”, for it may refer to comparing *age groups* (i.e., individuals who are young, mature, and old at the same point in time) or it may mean comparing individuals in different *birth cohorts*, which considers their entire life span. Clearly, while one goes through different age groups during one’s life cycle, one belongs to the same cohort throughout one’s life. In building the index of intergenerational (in)justice, a crucial problem concerns whether to adopt a perspective focused on birth cohorts or age groups.¹ As discussed later, in order to detect injustice in the relational and political dimension, age groups are the appropriate units of comparison. Concerning distributive fairness, a cohort analysis would be relevant. Yet, as argued in the next section, measuring how benefits, resources, and opportunities have been (are and will be) distributed between cohorts is cumbersome and requires several strong assumptions. Hence, while we concentrate on comparing the distribution across age groups, we will discuss how our analysis may carry over to a cohort framework.

A final clarification concerns whether age is a category appropriate for apportioning treatments and benefits. As a rule, personal characteristics, such as sex, gender, race, and nationality, are generally considered unjustified reasons for distributing advantages and disadvantages,² and treatments and attitudes based on such characteristics are condemned as discriminatory, sexist, homophobic, racist, and so on. While affirmative action policies are designed to redress the unjust disadvantages associated with certain traits, more broadly, granting special treatment based on so-called “received” or “ascriptive” characteristics is usually deemed discriminatory: these traits are morally arbitrary and have historically been used to signal inferiority. Yet, while there are some specificities about age, starting from the obvious fact that people age and move from childhood to adulthood and old age, there is no comparable shift in race or gender. Although certain changes are possible in gender, or

in religious affiliation or nationality, they neither concern the whole of the group marked by these features, nor imply any series of successive changes as does age. Besides, each age presents specific needs, vulnerabilities, and capabilities. In this sense, some age-differentiated treatments are not discriminatory—i.e., they are not wrong and unjust. For example, certain age limits for driving and for voting are generally not contested, though there is a discussion about where to fix those limits. No one contests that paternalism concerning infants and young children is justified, for we think that it is right that children are the addressees of special care and of special goods, lacking which they would be unjustly treated. Hence, providing special resources to infants, children, or old people, in principle, does not exclude anyone from those resources, given that, in life conditions of average longevity, anyone will pass through those stages. However, the specificity of age does not cover or justify any kind of age-specific treatments; to be more precise, it never justifies disrespect, abuse, and exclusion from rights because of one’s age. Ageism is precisely the term to describe disrespectful types of behavior and unjustified exclusion from certain rights and resources aimed at people based on their age, whether they are *older or young adults*.

Some indexes of Intergenerational Equity already exist in the literature. [Vanhuyse \(2013\)](#) constructed an Intergenerational Justice Index using a weighted average of indicators on economic and environmental elements, such as ecological footprint, child poverty, public debt level per child, and older adult bias in social spending. The index was computed for 29 OECD countries, but it is only available for a few years. The European Fairness Index ([Leach et al., 2016](#)) allows for a comparison across the 28 Member States, from 2005 to 2014, and includes 13 dimensions, mostly related to allocation of public spending (pension, health, education) across age groups. The Intergenerational Solidarity Index ([McQuilkin, 2018](#)) covers 120 countries and includes three dimensions: economic, social, and environmental. Other indexes have only national coverage. [Gagné et al. \(2016\)](#) introduce an Index of Intergenerational Equity to evaluate changes in the living standard of young Canadians in the provinces of Quebec and Ontario from 1976 to 2013. They use 30 indicators to estimate how power, wealth, and jobs were shared across generations in these 37 years. The Generational Divide Index ([Monti, 2017](#)) was introduced to study the extent of the delay that young people face in obtaining full autonomy and independence in Italy over the period 2006–2020. It includes several dimensions of public spending as well as democratic participation, crime, and corruption. The Intergenerational Justice Index ([Institute of Public Policy Thomas Jefferson - Correia da Serra, 2023](#)) studies Portugal from 2015 to 2020. Its indicators measure different, mostly economic, dimensions: the environment, health and mental health, public debt, the labor market, housing, and poverty. Our index combines the economic dimension, related to the allocation of resources, which is already present in many indexes, with two novel dimensions: relational equality and political equality.

Our analysis also speaks to a broader literature on intergenerational relations and fairness. To quantify these relations, [Mason & Lee \(2011, Chapter 3\)](#) developed a national transfer account (NTA), which measures the economic flows between members of different generations or age groups, stemming from public programs (education, pensions, health), as well as from private transfers. As discussed in the next sections, we focus on intergenerational equity across individuals of different age

groups and consider also non-monetary transfers. Our index emphasizes a zero-sum component in intergenerational relations, while recognizing that inequalities experienced early in life may have long-term effects. Indeed, a recent paper (Hemrijck et al., 2023) has theorized a “social investment life-course multiplier” according to which certain policies may potentially fuel a virtuous cycle of well-being over people’s life courses. Unlike the zero-sum view, a report by the European Commission: Directorate-General for Employment, Social Affairs and Inclusion, 2023, suggests that the welfare state is a bundle of interdependent policies, including redistribution, that may reap long-term social returns. The golden rule of public finances is then to secure social protection and allow borrowing to invest in social infrastructures.

Theoretical framework

Distributive fairness

Considering distributive fairness, two questions may be asked: (1) Is the actual distribution of benefits, services, and opportunities between age groups fair, or is it somehow biased in favor of old age, as perceived by the intergenerational equity literature (Howker and Malik, 2010; Thompson, 1996; Willets, 2011)?; (2) If comparing the amount of resources that baby boomers and Generation Z have and will be receiving over their life course, is this distribution fair? In the former case, we compare age groups; in the latter case, we compare birth cohorts. The theoretical literature on intergenerational fairness mostly favors the second cohortal perspective, focused on the whole life (Bidanure, 2021; Daniels, 1983, 1988, 2008; Gosseries, 2023). This perspective captures the temporal dimension of human life, following the insight by Rawls (1971) and Nagel (1973), as well as the intuition that human life alternates periods of dependence and vulnerability, where individuals are net beneficiaries of social cooperation, with periods of independence and productive life, where individuals are mainly net contributors. In this way, the whole life perspective can justify differential transfers at different ages of individuals, as long as the total sum of benefits and opportunities over the whole life course of individuals is fair, according to the principle of distribution favored by the theory, be it equality, sufficientarianism, prioritarianism, and so on. This perspective aligns intragenerational with intergenerational justice by comparing the whole life of contemporaries, whether belonging to the same or to a different generation.

Yet, this cohort analysis presents difficulties in terms of the available methodology in social sciences. Measuring the amount of resources received from (as in-kind services and transfers) and paid to (as social security contributions and taxes) the public sector is a challenging task. It requires obtaining hard-to-collect data for the past and making heroic assumptions for the future. Moreover, the comparison of different cohorts becomes further complicated if the amount and the nature of the available resources greatly vary over time and if demographic shifts, changing the structure of the population, take place. These complications make the direct inter-cohort comparison empirically challenging, even though it would be preferable in theory.

We are thus left with age group comparison, which is indeed the perspective adopted by the existing indexes (Leach et al., 2016; Vanhuyse, 2013). We will thus measure the distribution of resources, benefits, and services between age groups at a

given moment of time, given the amount of resources available at that moment. The inequalities that such a comparison registers, however, cannot just be taken as indicators of injustice, for different age groups are not equal in terms of capabilities, life expectancy, vulnerability, and autonomy. Therefore, in order to value whether the distribution of resources, benefits, and services across age groups at a given moment in time is fair, this distribution should be evaluated using an age-specific distributive theory. In turn, the latter should be spelled out, taking into account the temporal dimension of human life with its alternate periods of dependency and autonomy, acknowledging age group differences in terms of needs.

There are a few age-specific distributive theories justifying differential distributions across age groups. Two of the most widely known and discussed theories endorse forms of whole life egalitarianism. The first is *reciprocity*, the view that what we owe to each other should match what we receive from each other, which, in the case of justice across generations, is indirect. That is because benefits and costs are never directly exchanged but rather flow upward and downward across overlapping generations. The idea of indirect reciprocity has been discussed both in terms of strategic reasoning (Heath, 2013) and in terms of social norms and the golden rule over time (Wade-Benzoni, 2002). The fact that adults contribute to the pensions and the healthcare of older people is rationally, socially, and morally based on the expectation that they will become beneficiaries when old, and that they are behaving like their predecessors did towards the older generation, as fairness and social norms require (see footnote 2). The other whole life egalitarian theory, predominant among political philosophers, is the Prudent Life Account (PLA), spelled out originally by Daniels (1983, 1988). According to the PLA, from an age-based perspective, the distributive principle should be one of prudence, favoring a scheme of saving that makes possible resource transfers from work contributions to old age needs.³ The principle of prudence and the consequent policies need not be thought of as concerning *interpersonal* choices, but rather, *intrapersonal* ones. A rational agent, behind a veil of ignorance relative to her age, reflecting on the different needs of each phase of human life, would adopt a strategy of prudent saving from one’s young and mature productive phase to one’s later inactive and vulnerable old age. In this way, the PLA dispenses with problematic transfers across persons. There are, however, problems with this kind of whole life egalitarianism, for it seems to license the possibility of alternate periods of abundance and of destitution in the lifespan of individuals, as long as the total distribution considering the whole life of people is equal, a possibility that clashes with our deep intuitions about justice across age groups (McKerlie, 2012). Another issue of whole life egalitarianism concerns the discount of the unequal longevity of persons (Lazenby, 2011; McKerlie, 2012), which leads to a certain distributive unfairness relative to people who die young and do not reach the age of retirement, hence not receiving back what they gave to the older generation. Population aging further exacerbates this aspect, as the share of recipients from these in-kind services and welfare transfers (older adults) increases, while the share of contributors (young adults) shrinks. Such criticisms suggest that intergenerational fairness may require either simultaneous segment egalitarianism (McKerlie, 2012) or more generous allocations at an earlier age to compensate those who will not reach old age (Valente & Gosseries, 2023).

We propose to integrate the age group approach with insights from the whole life view: the whole life view takes the temporal dimension of human life seriously and suggests assessing the needs of each life stage in the context of the whole life. The age group comparison must be informed by such a temporal perspective so that the differential age-related needs and capabilities of individuals are inscribed in a just framework regarding the whole life of individuals, which, in turn, will allow us to make inferences about cohorts and their reciprocal standing.

We propose that the distributive principle that best translates the desiderata of integrating the two perspectives is the principle of sufficiency. Other scholars of justice across age groups have endorsed sufficientarianism under some interpretations (Bidanure, 2021; Bou-Habib, 2011; Cass, 2024; Gosseries, 2023). Yet, our sufficientarian proposal should be duly specified. We are not advocating a sufficiency principle for covering the basic needs of any agent in any age group (i.e., an *absolute* threshold of sufficient goods, benefits, and resources). We advocate an *age-relative* sufficiency so that each age group should be covered not only relative to basic human needs, but also relative to age-specific needs, in order to be able to live with dignity at any stage of life and to pursue projects adequate for that stage. Certain needs are clearly age-specific. The need to have opportunities to conceive and build a career and a family is typical of young people entering adulthood, while the need to be respectfully cared for is typical of the late stage of life. Moreover, certain age-specific needs, if not satisfied with sufficient resources, produce inequalities that tend to persist and, in some cases, multiply in later phases of life. If children are not provided with preventive medicine and with adequate education, not only will they fall below the threshold of age-specific sufficiency, but the resulting inequalities are likely to persist and produce deeper inequalities later in life, especially difficult to amend. For example, if infants are not screened and treated for congenital hip dysplasia, the latter will transform into a permanent disability for the person. The lack of certain resources early on induces scarring effects impacting later life phases, and the resulting damage is indeed the unjust outcome of the lack of age-relative sufficient resources at an earlier stage of life. In sum, the age-specific principle of sufficiency recommends that: (a) any age group should at least have a sufficient amount of resources, benefits and opportunities to live with dignity and respect and to pursue life plans adequate to the age group; (b) more generous transfers should be reserved to early life stages in order to avoid persistent inequalities and multiplied unjust effects in adulthood and later stages of life (This last provision also responds, at least in a partial way, to the issue of differential longevity as remarked by Gosseries, 2023; and Valente, 2023). The first recommendation clearly includes a synchronic, distributive requirement, while the second invites us to consider the distributive effects of certain resources at a given time for justice over the whole lifespan of persons. Thus, detecting the scarring effects induced by insufficient age-relative allotments allows us to infer some elements of cohortal injustice: if young adults are deprived of certain resources, and this produces persistent inequalities over their life span, the young adult group as a cohort suffers an unjust disparity.

Hence, two areas on which the distributive section of the index shall focus are: (1) the *economic* area, and (2) *health*. After all, no one can live with dignity pursuing their age-relative plans if, for example, they fall below the threshold of poverty, are unemployed for a long time, or their health needs are not

met. To these two, our index adds a third dimension, *environment*, investigated by considering whether individuals have problems with pollution, dirt, or other environmental issues.

We measure the economic factor using four subcomponents, which pertain to the allocation of resources in the labor market: (a) *relative poverty*, (b) *unemployment*, (c) *permanent contracts*, and (d) *wages*. The first two subcomponents (a-b) measure individuals' economic and labor market conditions and allow us to say whether the sufficiency principle is violated or not, and help us predict cohort effects. The other subcomponents relate to the stability and quality of the working status, which have important consequences for many individual decisions, such as fertility (Alderotti et al., 2021). While an equitable distribution of resources is mainly related to labor market allocation, resources are also redistributed by the public sector through taxes and transfers. To account for these aspects, we use the after-taxes-and-transfers definition of relative poverty that considers, albeit indirectly, the effects of public intervention.

Regarding health, we abstain from investigating which portion of the public budget is dedicated to the health of young or older adults, since older adults generally have more and greater health needs. We concentrate on the existence of unmet basic health needs, and on how they may differ across the age groups. This is consistent with the principle of age-specific sufficiency. We use self-reported unmet health needs as a subjective indicator. This consists of the share of individuals in the different age groups not being able to have a (needed) medical examination or treatment, for reasons that can be considered unjust. Even if imperfect, this measure may highlight possible objectionable inequalities in access to health, if, for instance, young people are less able to have the needed access to health care than older adults, or vice versa.

Status and social equality

When social and relational equality is at issue (i.e., equality of status, respect, and standing of agents both vertically in relation to institutions and horizontally in relation to each other), justice across overlapping generations requires the consideration of synchronic age segments (i.e., the age group perspective). Certain kinds of age group inequalities cannot be compensated for at a later or earlier stage of life. Age-based marginalization, exclusion, demeaning, and discrimination are unjust at any stage of life, and everyone at any age is entitled to equal status and equal respect both in consideration and in treatment, horizontally by fellow-citizens as well as vertically by institutions. Being treated and considered as equals applies to each single moment of everyone's life and does not admit trade-offs between different stages of individual life. One may wonder at this point why relational equality, which should always be the case at any moment of individual life, is relevant in the context of intergenerational justice. The answer is that age is, in fact, one of the determinants of unjust social relations when one party mistreats, disrespects, demeans, humiliates, and abuses the other because of their age. Especially in the case of older adults, young adults, and children, discriminatory and abusive treatments and prejudices are common, as well documented by the study of ageism. Hence, relational equality is indeed a goal of justice across generations. Yet, how can relational equality apply to persons with limited agential capacity, such as infants, children, and dependent old people? We hold that relational equality is a regulative ideal that constrains our attitudes and

actions towards others, whether they are autonomous or dependent and needy. Limited paternalism, justified by the need for care in the especially vulnerable phases of life, should, however, be constrained by the regulative ideal of relational equality that prescribes to relate to non-autonomous persons *as if* they were equals, namely respecting their dignity.

Our index thus aims at measuring social ageism by means of two indicators, namely *social isolation* and *discrimination*. *Social isolation* is a proxy for marginalization and is mainly considered and measured in connection to the availability of institutional opportunities for social relations for different age groups. Social isolation is a multifaceted issue that profoundly impacts individuals. Defined as the lack of social connections and meaningful interactions (Zavaleta, Samuel, & Mills, 2017), social isolation can lead to adverse outcomes such as increased morbidity (Cacioppo et al., 2011) and reduced life satisfaction. The degree of social isolation experienced by different generations can vary significantly due to varying socioeconomic conditions, technological advancements, and cultural shifts. Understanding the extent to which different generations suffer from social isolation is crucial for assessing intergenerational justice. The index should track the degree to which age groups are disproportionately disadvantaged in terms of social connectedness. Comparing social isolation across age groups is a daunting, but not an unfeasible task (Zavaleta et al., 2017).

Relational discrimination, particularly based on age, is a critical issue that affects individuals across different stages of their lives. This form of discrimination involves prejudicial attitudes and unfair treatment directed towards individuals because of their age. Understanding and addressing relational discrimination is essential for promoting social justice and ensuring equal opportunities for all age groups, since relational discrimination is not only inherently unjust but also has harmful consequences, perpetuating social stratification and exclusion. This leads to significant disparities in access to resources and opportunities (Manning et al., 2004) and even to severe mental and physical health issues, including depression and stress (Dobrowolska et al., 2019). Relational discrimination can manifest itself in various ways: as prejudice or unfair treatment due to age (Ferris & King, 1992), as lack of respect (e.g., patronizing behavior or ignoring individuals because of their age; Garstka et al., 2005), and poor treatment (e.g., insults, abuse, or denial of services based on age; Roscigno et al., 2007).

Understanding the differential impact of relational discrimination on various age groups is crucial for crafting targeted policies that address the specific needs of different age groups, ensuring that interventions are effective and equitable (Finkelstein et al., 1995). By highlighting the areas where age-based discrimination is most prevalent, efforts can be directed towards fostering social integration and reducing societal fragmentation (Bidadanure, 2016).

Political equality

Lastly, with reference to political equality, the third dimension of justice, the age group perspective is the relevant unit for detecting (in)justice in the political dimension. Political equality does not only mean political rights and political freedom, but also equal opportunity to influence political collective decisions, as captured by the democratic ideal of coauthorship. In a just democratic society, all members must be granted political equality and be recognized as equal political agents. This

implies that they must not be treated as passive beneficiaries of policies chosen by others, as this would undermine their full agential capacities and prevent them from having control over their own lives (Näsström, 2021). A satisfactory index of intergenerational justice should include a measure of political justice as a crucial component. Although existing indexes include some political indicators, they tend to focus mainly on socioeconomic factors and do not provide a comprehensive and nuanced perspective on political justice. To address this gap, we provide a definition of political justice and then identify three indicators that can be used to measure its two main components. We endorse a democratic account of political justice (Kolodny, 2023; Lafont, 2019), which requires that: (1) citizens have equal political influence over the decision-making process; and (2) political decisions are responsive to the preferences of all citizens.

There are some indexes that have tried to account for intergenerational political disparities. For instance, the European Intergenerational Fairness Index (Leach et al., 2016) compares the turnout of young people with the turnout of the whole electorate. Along with turnout, the Generational Divide Index (Monti, 2017) includes the age of parliamentarians as an indicator of democratic participation.

Our indicators will evaluate whether these two components of political justice are unequally distributed across different age groups. Moreover, the sources we utilize are frequently updated, enabling us to revise the index as new data becomes available. This creates a valuable time series that can aid in policy tracking and analysis. To determine whether disparities between age groups in the exercise of political influence and in the responsiveness of the political decisions to their interests are unfair, it is crucial to establish a standard of comparison. While an indicator of the fair distribution of political power to influence collective decision-making would ideally entail equal electoral participation, other indicators may allow for some deviations from equality, but not beyond a minimal threshold. If we look at the share of political representatives and the share of officials holding leadership positions, it is reasonable to say that justice does not require strict equality. However, if any age group is significantly underrepresented, the ability of members of that group to influence decision-making is constrained. To capture political justice across age groups, we refer to indicators that intersect electoral turnout and elected representatives by age groups so as to track more nuanced disparities of citizens belonging to different age groups concerning democratic politics. The first indicator is political perception, which examines how individuals perceive their own ability to have a say and influence and shape political outcomes. The second indicator, political engagement, considers both the participation of different age groups in elections (as self-reported), being close to a party, and being interested in politics. Finally, we measure political representation, an indicator that measures how each age group is represented in elected bodies.

Indicators

Our indicators compare how young and older adults fare on several outcomes. For positive outcomes, such as having a permanent contract or having a large social network, our sub-indicators are constructed as the difference between the value of the outcome for older and the younger individuals, normalized by the average value of the outcome for the entire

population. For negative outcomes, such as being unemployed or being discriminated, our sub-indicators are instead constructed as the difference between the value of the outcome for the young and the older individuals. Hence, the sub-indicators are expressed in percentage terms, in which positive values indicate the underlying outcome favoring older adults. Conversely, negative values indicate the negative outcome favoring young adults.

Distributive Fairness Index

For Distributive Fairness, we focus on several components.

The economic component is comprised of the following sub-dimensions: (a) *relative poverty*, (b) *unemployment*, (c) *permanent contracts*, and (d) *wages*. The source data for each economic sub-dimension come from the European Survey on Income and Living Conditions⁴ (EU-SILC, cfr Arora et al., 2015). The definition of “young adult” and “older adult” may need to be changed according to the sub-dimension we consider.

When considering *relative poverty*, we compare people aged 65 and over (older adults) to those aged 25 to 34 (young adults). Sensitivity analysis is performed using other age brackets.

We use the 2023 data from EU-SILC to compute the poverty sub-dimension indicator as illustrated in Equation 1:

$$Poverty = \frac{AtRiskOfPoverty_{25-34} - AtRiskOfPoverty_{65+}}{AtRiskOfPoverty_{25+}} \quad (1)$$

When the labor market is taken into consideration, people aged 55 to 64 (older adults) are compared to those aged 25 to 34 (young adults). This choice was made because most people retire at 65 or earlier, while many individuals may be in education until age 25. Using the 2023 EU-SILC data, Equations 2 and 3 illustrate how the sub-dimensions related to *unemployment* and *permanent contracts*, respectively, can be computed:

$$Unemployment = \frac{unemploymentrate_{25-34} - unemploymentrate_{55-64}}{unemploymentrate_{25+}} \quad (2)$$

$$PermanentContracts = \frac{\%PermanentContracts_{55-64} - \%PermanentContracts_{25-34}}{\%PermanentContracts_{25+}} \quad (3)$$

To estimate age-based wage differences, we adopt a Mincerian regression approach using the EU-SILC data. Since the broader index already captures labor market disparities related to the extensive margin—both in terms of employment quantity (unemployment rates) and quality (share of permanent contracts)—our analysis focuses on the intensive margin. Specifically, we restrict the sample to individuals aged 25 to 65 who have held a full-time contract within the past 12 months.⁵ We estimate the model separately for each country, focusing on within-country variation in wages. In each case, we regress individual net yearly wages on a set of age cohort indicators and standard wage determinants (gender, years of education, labor market experience, occupation, economic sector, contract type, and immigration status). This flexible specification allows us to account for heterogeneity across these dimensions without imposing restrictive functional form assumptions. The model includes two age cohort indicators (one for individuals

aged 25–34 and another for those aged 55–64), while the 35–54 age group serves as the reference category. The estimated coefficients on the age cohort dummies, net of other controls, capture the age-related wage gaps within each country not explained by observable characteristics. We then construct the wage inequality component of the index as the difference between these two coefficients (β_{55-64} minus β_{25-34} , which reflects the wage advantage (or disadvantage) in percentages of older versus younger workers within each country.

For the health component, we concentrate on one sub-dimension: *access to health*. Among people with healthcare needs, we identify those with satisfied healthcare needs and those whose healthcare needs were not satisfied for reasons that can be considered unjust. The young adult group consists of individuals in the age group 25 to 34, and the older adult group consists of older adults aged 65 or older. The health component is also based on the EU-SILC data. Respondents are asked whether there was at least one occasion on which they needed medical examination or treatment and did not receive it. Those who did not receive it were asked the main reason for this unmet medical examination or treatment. Possible answers included: (1) could not afford to; (2) waiting list; (3) could not take time because of work, care of children or others; (4) too far to travel/ no means of transportation; (5) fear of doctor/hospital/examination/treatment; (6) wanted to wait and see if the problem got better on its own; (7) did not know any doctor or specialist; (8) other reasons. We consider responses 1–4 and 7 as unjust reasons for not being treated. The *access to health* sub-dimension is computed as illustrated in Equation 4:

$$AccessToHealth = \frac{SatisfiedHealthNeeds_{65+} - SatisfiedHealthNeeds_{25-34}}{SatisfiedHealthNeeds_{25+}} \quad (4)$$

The environmental component aims to assess exposure to risk. We use answers to the following question in the 2023 EU-SILC data: *Does the area where you live have problems with pollution, dirt, or other environmental problems caused by traffic or industrial activities?* Possible answers are Yes or No.

$$Environment = \frac{EnvironmentalRisk_{25-34} - EnvironmentalRisk_{65+}}{EnvironmentalRisk_{25+}} \quad (5)$$

We compute the Distributive Fairness Index as the simple average of the above sub-indicators related to poverty, unemployment, permanent contracts, wages, access to health, and environmental risks.

Relational Equality Index

We rely on the 2023 EU-SILC and ESS data to capture self-reported quantity and quality of personal relationships, as well as self-reported levels of institutional support for societal connections. For quantity, we look at how often people meet socially with friends, relatives, or colleagues, and whether they engage in any regular leisure activity. For quality, we look for how many people an individual can count on to discuss intimate and personal matters with, we consider their mental well-being, and whether they belong to a discriminated group in their country. Finally, we consider self-reported answers on

individuals' access to the internet at home. This represents an important element to assess individuals' ability to access virtual places where social interaction can occur. Clearly, accessing the internet from home makes it easier to satisfy various personal needs, and, at the same time, to have a network of social relations to sustain vulnerable people, in case relatives and friends cannot be reached or are absent. We compare levels of social connections for people aged 65 and over (older adults) and those aged 25 to 34 (young adults), but sensitivity analysis is performed using other age brackets.

More specifically, we use a question from the ESS on how often respondents meet socially with friends, relatives, or colleagues. We build a dummy equal to 1 if the individual has social meetings at least once a week, and 0 otherwise. Then, we compute the sub-dimension *Social meetings* as the difference in the average values of individuals having social meetings in the two age groups, as illustrated in Equation 6:

$$SocialMeet = \frac{SocialMeet_{65+} - SocialMeet_{25-34}}{SocialMeet_{25+}} \quad (6)$$

A yes/no question from EU-SILC investigates whether the respondents engage in any regular leisure activity. Equation 7 illustrates how we compute the related sub-dimension:

$$LeisureActivityRatio = \frac{LeisureAct_{65+} - LeisureAct_{25-34}}{LeisureAct_{25+}} \quad (7)$$

Another question from the ESS asks how many people the respondents can count on to discuss intimate and personal matters. We built a dichotomous variable, taking value 1 if the respondent can discuss such matters with at least three people. Thus, we computed the *Social network* sub-dimension as illustrated in Equation 8:

$$SocialNetwork = \frac{SN3_{+65+} - SN3_{+25-34}}{SN3_{+25+}} \quad (8)$$

Turning to mental well-being, the ESS includes a set of 8 questions that can be used to compute the Centre for Epidemiologic Studies Depression Scale (CES-D8), a common tool to evaluate the incidence of depressive symptoms (Radloff, 1977). Since CES-D8 represents a negative outcome,⁶ in line with the previously discussed methodology, we compute the mental well-being sub-dimension as illustrated in Equation 9:

$$MentalWellbeing = \frac{CES - D8_{25-34} - CES - D8_{65+}}{CES - D8_{25+}} \quad (9)$$

Addressing age-based discrimination requires a different approach. The ESS questionnaire includes a yes/no question about whether respondents belong to a discriminated group in their country. Further questions from the ESS inquire about respondents' gender, age, ancestry, citizenship, country of birth, religious beliefs, and disability status. All these characteristics represent possible grounds on which people may be discriminated against. Therefore, we estimate separate probit regressions by country with *belonging to a discriminated group* as a dependent variable, age groups as our explanatory variable of interest, and controlling for the previous characteristics, as well

as for other variables such as education and region (NUTS1). We can then obtain the marginal effect of belonging to a discriminated group based on age group (i.e., the probability of belonging to a discriminated group among respondents aged 25 to 34, and 65+, respectively). We can thus compute the discrimination sub-dimension as illustrated in Equation 10:

$$Discrimination = \Pr(DiscriminatedGroup)_{25-34} - \Pr(DiscriminatedGroup)_{65+} \quad (10)$$

The sub-dimension *Internet Access* is based on a question in EU-SILC. We build a dichotomous variable, which equals 1 if the respondent has an internet connection for personal use at home, and 0 otherwise. Equation 11 illustrates how the corresponding sub-dimension is computed:

$$Internet Access = \frac{InternetAccess_{65+} - InternetAccess_{25-34}}{InternetAccess_{25+}} \quad (11)$$

We compute the Relational Equality Index as the simple average of these six sub-indicators: regular leisure activity, internet connection for personal use at home, social relations, close relations, discrimination, and mental well-being.

Political Equality Index

Our Political Equality Index includes three sub-dimensions that compare political disparities across age groups: (1) Political Perception, (2) Political Engagement, and (3) Political Representation. These indicators include only data from citizens, as they are the ones entitled to exercise political rights. Consequently, measures related to participation beliefs or agency perceptions, which could bias estimates, are excluded. To account for cross-country differences, such as cultural and institutional variations, all measures are normalized relative to the overall citizen outcome. Our analysis focuses on two age groups: 18–35 years old and 65 or older (see footnote 6). Positive values of the indicator reflect better outcomes in favor of the older adult group.

Political Perception examines how individuals perceive their own ability to influence and shape political outcomes. Political justice requires that all citizens have equal opportunities to participate in decision-making. To analyze how these differences emerge, we focus on cross-country variations in age group differences using the ESS responses that measure self-perceived political influence and the ability to have a say in national decision-making.

Political Engagement examines how individuals from different age groups participate in elections and perceive their representation among available political options. Using the self-reported individual-level data from ESS, this indicator is based on the responses to questions about turnout rates, whether individuals feel close to or represented by a political party (and which one), and their (general) interest in politics. It can be argued that democratic justice requires equal opportunities to influence decision-making (Dahl, 2008; Beitz, 2020) and that, if asymmetries in turnout levels exist, they are not unjust, since they derive from voluntary decisions to abstain. Those who choose not to vote are still recognized as equal political agents. However, this view is controversial, as limited participation in electoral decision-making may be the result of a political system that fails to provide some citizens with equal political power.

Finally, *Political Representation* examines how individuals from different age groups are represented in political institutions. Along with political turnout, it is important to consider the opportunities citizens have in shaping political decisions. Political representatives develop and define proposals that influence decision-making, making the opportunity to become a representative a key indicator of political influence. To obtain cross-country data, we leverage open data from the WARP dataset (Stockemer & Sundström, 2022), which provides a measure of representation based on the ratio of representatives in each age group to the number of voters in that group. This dataset is updated after every election, allowing us to analyze how each new legislature evolves in terms of age representation.

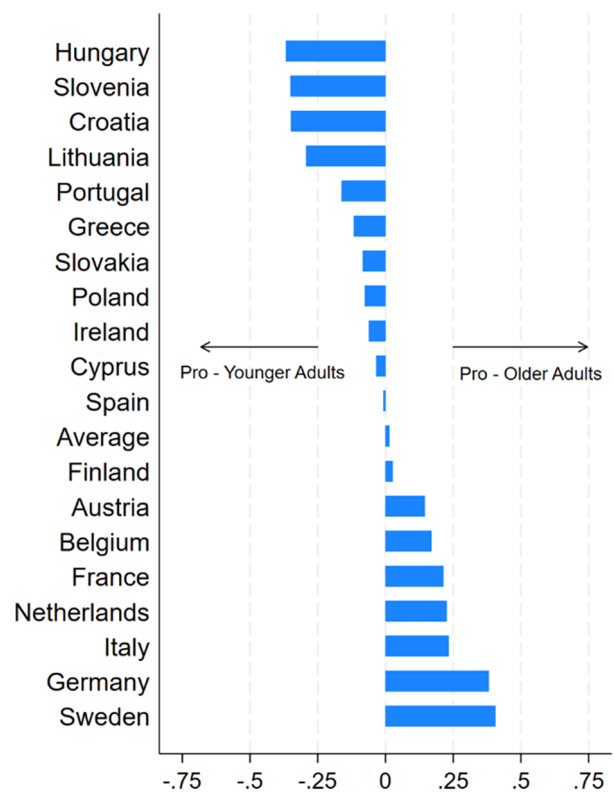
We also explore how representation gaps observed in the *Political Engagement* and *Political Representation* dimensions may result from deficiencies in political parties' outreach to different age groups. To do so, we use text-analysis tools to review party manifestos for each election and assess their responsiveness to issues relevant to different age groups (e.g., education and job insecurity for younger voters) using the data available in the Manifesto Project (<https://manifesto-project.wzb.eu/>).

Preliminary results

Using the sub-indicators discussed in the previous section, we provide an initial portrait of intergenerational justice in Europe along two of our three dimensions: *distributive fairness* and *social equality*. All indicators take positive values when indicating a situation that favors older adults and negative values when favoring young adults.

Figure 1 shows the Distributive Fairness Index, the aggregate indicator related to *distributive fairness*. Figure 1 suggests large differences across countries: a group of countries (Hungary, Slovenia, Croatia, Lithuania, Portugal, and Greece) favors young adults in the distribution of resources, another group (Sweden, Germany, Italy, the Netherlands, France, Belgium, and Austria) favors older adults, while the rest of other countries (Slovakia, Poland, Ireland, Cyprus, Spain, and Finland) are more balanced. However, this aggregation reflects large differences in how the different age groups fare in the labor market, health access, and environmental risks. In Croatia, the labor market conditions are rather balanced across age groups, but poverty, unmet health needs, and environmental risks are lower among young adults. Hence, the aggregate indicator favors the young adult group. In Italy, instead, older adults do better in each single sub-indicator, except for satisfied health needs. In every sub-indicator, some countries favor older adults while others favor young adults. The only exception is the share of permanent contracts, according to which all countries favor older adults.

Figure 2 shows the Relational Equality Index, the aggregate indicator related to *social equality*, which measures social isolation and relational discrimination. This index favors the young people in all countries. The countries in which social isolation and relational discrimination are more concentrated among older adults, and thus the indicator favors young adults, are Greece, Hungary, Lithuania, Italy, Croatia, and Slovakia. For Hungary, Croatia, and Lithuania, this confirms the results of the Distributive Fairness Index that also favored young adults. For Italy, instead, it displays a strong difference with respect to the Distributive Fairness Index that largely favors older adults. In every country, the sub-indicators measuring social isolation show that young adults are more socially



Distributive Fairness Index for 19 European countries

Figure 1. Distributive Fairness Index across 19 European countries. The index is calculated by averaging the sub-indicators related to poverty, unemployment, permanent contracts, wages, access to health, and environmental risks.

connected. Instead, the discrimination sub-indicator favors older adults in every country, suggesting that young adults are more likely to belong to a discriminated group in their country. Finally, the mental health sub-indicator shows large differences. It strongly favors young adults in Croatia, Italy, and Poland, and older adults in Ireland, Austria, Slovakia, and Sweden, where the score on the CES-D8 scale suggests a higher incidence of depressive symptoms among people aged 25 to 34.

Finally, shown in Figure 3 is the Intergenerational Justice Index, a single indicator calculated by averaging the Distributive Fairness Index and Relational Equality Index values. The large magnitude of the Relational Equality Index in favor of young adults has the effect of pushing almost all countries into a pro-young adult position. Only Germany, Sweden, the Netherlands, and Belgium remain pro-older adult in the Intergenerational Justice Index. All other countries, even some of those that were strongly pro-older adult in distributive fairness (e.g., Italy), become pro-young adult in the Intergenerational Justice Index, while France is overall balanced, but only due to the sum of two imbalances with different signs. A final assessment will, however, require the inclusion of the *political equality* indicator as well. Preliminary results on this *political equality* indicator suggest that, with its inclusion, some countries, such as Italy and France, will switch to being pro-older adult.

Conclusions

Constructing an index of intergenerational justice is a complex enterprise that entails many choices. To ease the measurement

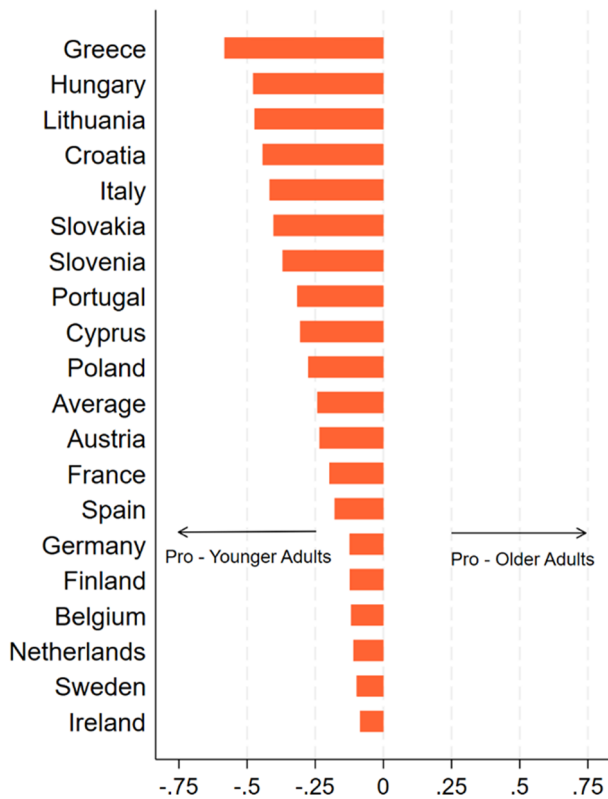


Figure 2. Relational Equality Index across 19 European countries. This index measures social isolation and relational discrimination, and is the simple average of the sub-indicators related to leisure activities, internet connection, social relations, close relations, discrimination, and mental well-being.

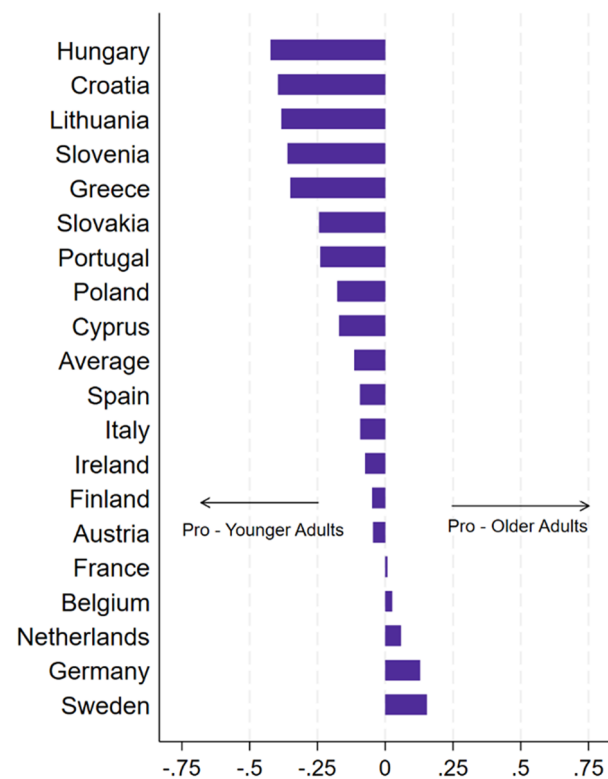


Figure 3. Intergenerational Justice Index across 19 European countries. The indicator is calculated by averaging the Distributive Fairness Index and the Relational Equality Index.

and replicability of the index, we decided to adopt an approach that focuses on the comparison between individuals of different age groups. Moreover, we decided to concentrate on three main dimensions of justice: *distributive fairness*, *social equality*, and *political equality*. We constructed nationwide indicators for nineteen European countries, using mostly EU-SILC and ESS data.

Preliminary results suggest large differences across age groups in the Distributive Fairness Index, with a group of countries clearly favoring older adults (Sweden, the Netherlands, Italy, France, Belgium, and Germany) and another group clearly favoring young adults (Sweden, Germany, Italy, the Netherlands, France, Belgium, and Austria) in the distribution of resources. However, in the Relational Equality Index, all countries favor young adults. These results provide an interesting preliminary scenario for understanding how countries treat their older and younger citizens. In Italy, there is a strong difference depending on the area analyzed: the distribution of resources strongly favors older adults, who are, however, more likely to be socially isolated. In Croatia, both the Distributive Fairness Index and the Relational Equality Index suggest that young adults are in a better position.

With the addition of the indicator of political equality, the Intergenerational Justice Index presented in this study may represent a useful tool to assess and measure intergenerational justice and thus to promote public policies that may make the relationship between individuals of different age groups more just and equitable.

In conclusion, a comprehensive approach to intergenerational justice requires policies that simultaneously bolster economic security at both ends of the life course. This can be achieved through targeted youth employment subsidies, enhanced family supports and childcare, sustainable contribution-linked pension schemes, and universal health access. In parallel, governments must mitigate environmental hazards by investing in green infrastructure and clean-energy grants.

Such an approach should also advance social equality by enforcing anti-ageism legislation, promoting digital inclusion for older adults, and fostering intergenerational mentorship and time-bank initiatives. Finally, political equality can be strengthened by expanding civic education and voting access for younger cohorts, reserving representation for both younger and older candidates, and instituting age-balanced advisory councils.

These measures should be coordinated by a dedicated Age Equity Task Force and monitored through regular updates of the Intergenerational Justice Index.

Our Intergenerational Justice Index can be extended in several directions. For example, it can be calculated separately by gender, allowing for the assessment of intergenerational inequality within each gender. This extension is particularly relevant given the substantial changes in women’s roles in society and in the labor market over time, which may generate significant differences across female age groups. The Index could also be computed at the subnational level to reveal potential regional differences in intergenerational justice within countries.

Author Notes

1. In the literature on justice across coexisting generations, the two relevant concepts are age groups and birth cohorts (Daniels, 1983, 1988, Bidanunre 2021,

Gosseries 2023), for what counts is whether the comparison is made between individuals' whole life or between simultaneous segments of older and younger people. Other classifications used in social science texts are not relevant here.

2. Personal characteristics may be considered legitimate reasons for distributive aims only in the case of reverse discrimination or affirmative action.
3. This view corresponds to that of a generational contract as expressed in the social science literature (Arber & Attias-Donfut [2007] in the first few pages of their edited book, *The Myth of Generational Conflict: The family and state in ageing societies*, though the aim is here specifically justificatory of the indirect distribution.
4. This survey is part of an integrated system of social surveys - the multipurpose surveys on families - and collects fundamental information related to the daily lives of individuals and families. Since 2003, the survey has been conducted annually on around 25 thousand respondents. The information collected pertains to the habits of citizens and the problems they face every day, as well as whether they are satisfied with the functioning of those public utility services that should contribute to improving the quality of life. School, work, family and relationship life, housing and the area where they live, leisure time, political and social participation, health, and lifestyles are the topics investigated.
5. Restricting the sample to full-time contracts facilitates international comparison, as part-time contracts vary considerably across countries. However, this choice may introduce some bias, since part-time work is particularly common among women aged 25–34, who often balance employment with childcare responsibilities.
6. There is no agreed definition of what is a “young representative”, but a widely used threshold is those below the age of 35 years (Norris and Franklin, 1997).

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Conflict of interest

None declared.

Author contributions

Vincenzo Galasso planned the study, supervised the choice of indicators, organized the data analysis, and wrote the Introduction and contributed to the revision of the paper. Anna Elisabetta Galeotti planned the theoretical framework, supervised its elaboration, wrote the second part, and contributed to revising the paper; Asya Bellia performed the statistical analysis and contributed to writing parts 3.2 and 4.2. Enrico Biale, Laura Santi Amantini, and Gloria Zuccarelli laid out part 5 on political equality and singled out the relative indicators. Davide Pala wrote part 3.1 and Carlo Burelli wrote part 4.1. Cristobal Ruiz-Tagle Coloma contributed to the statistical analysis and to the writing of part 5.

Data availability

Aggregate data will be available on the “Age-It” webpage. Individual data will be available upon request unless they are proprietary (e.g., EU-SILC).

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