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Social Sustainability, Poverty, and Income: An Empirical Exploration

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Abstract: Social sustainability is often poorly understood and vaguely defined, despite growing appreciation for its relevance as a concept. This article advances the empirical understanding of social sustainability by constructing a global database of 71 indicators across 193 countries and 37 territories between 2016 and 2020. Indicators are flexibly clustered around four dimensions—social inclusion, resilience, social cohesion, and process legitimacy—for which we construct measurement indices. A simple empirical analysis using our database confirms that social sustainability is positively and strongly associated with per capita income; negatively and strongly associated with poverty; and negatively but weakly associated with income inequality. Much remains to be analyzed to understand the interactions between dimensions, but our results underscore that social sustainability matters not only in itself but also in order to reduce poverty. Furthermore, extending access to markets, basic public services, and social assistance needs to be complemented with strengthening process legitimacy and social cohesion if inequality is to be reduced.

Introduction

Even before the COVID-19 pandemic, social inequality around the world had reached staggering levels. Cuesta, Niño-Zarazúa, and Lopez-Noval (2022) estimate that more than 2.2 billion people worldwide were at risk of being excluded from a dignified life due to their circumstances, identity, or socioeconomic status in 2017. The numbers of the excluded more than tripled the extremely poor and doubled the multidimensionally poor (689 million and 1.45 billion, respectively; World Bank 2020 and Alkire and Robles 2017). Furthermore, the fallout from COVID-19 has reversed decades of poverty reduction (Valensisi 2020).

The pandemic caused 97 million people to fall into poverty in 2020, an annual increase without precedent since the Asian financial crisis of 1997 (World Bank 2021). The pandemic has increased inequalities within and between countries and further excluded marginalized groups from policy processes. For example, vaccination rates in poor countries are ten times lower than in rich countries (WHO 2021). A recent review concluded that "the poor, women, racialized

minorities and other disadvantaged groups" have been disproportionately impacted by the pandemic (Henson et al 2020:1341). Roelen et al (2020) argue that the stigma associated with COVID-19 contributes to a vicious circle of poverty, precarious and unstable living conditions, and vulnerabilities associated with ethnicity and origin, age, and gender. Poor people are more likely to test positive: for example, the COVID-19 mortality rate among Black Americans in 2020 was 2.4 times higher than among Whites in the US, and three times higher among indigenous peoples vs. non-indigenous people in Mexico (APM Research Lab 2020, Secretaria de Salud de Mexico 2021). Azevedo (2020) estimates that COVID-19 may increase the number of primary school age children either out of school or below the minimum proficiency level in reading from 382 million to 454 million worldwide. Reported cases of gender-based violence (which furthermore likely capture only a fraction of the actual number) have soared around the world since the start of the pandemic: including by 33 percent in Singapore, 30 percent in Cyprus and France, and 25 percent in Argentina (CARE 2020).

The universal yet unequal effects of the pandemic have renewed the focus among policymakers on poor countries and vulnerable populations after a prolonged period of sustained poverty reduction. COVID-19, revived outbreaks of civil conflict, and the increasingly severe manifestations of climate change have eroded previous optimism about "bending the arc of history" by ending poverty within a generation (World Bank 2013:12). The notion of "building back better" towards a sustainable, green and inclusive recovery has become a commonplace internationally (Balseca et al 2020, White House 2021). It remains to be seen, however, whether this heightened awareness is enough to turn the hitherto aspirational nature of social sustainability (embedded, for example, in the UN SDGs, UN 2015) into firm policy objectives.

As a starting point for a meaningful policy discussion on long-term social sustainability we pose the following question: to what extent are poor countries less socially sustainable than rich countries? While the answer appears obvious—we would expect more socially sustainable countries to be wealthier ones—compelling empirical evidence is not abundant. In order to address this question, we need an operational definition of social sustainability. Unfortunately, there is neither an agreed definition of social sustainability nor consensus around how to measure it. To overcome this gap, this article expands the literature in three ways. First, we review the existing definitions of social sustainability and propose a pragmatic definition—instead of providing yet another highly complex characterization—that allows us to measure social sustainability across countries. Second, we construct a global database capturing the multiple aspects of social sustainability emphasized by the previous literature. Third, we provide empirical evidence on the relationship between countries' poverty and income levels and their social sustainability indices. Based on such correlations we conclude that, as expected, more socially sustainable societies are less likely to be poor—a result that is consistent across choices of social indicators and functional forms and remains the same when evaluating developmental outcomes other than poverty and inequality (such as human capital or human development). Perhaps less expectedly, these associations are not uniform across components of social sustainability, nor across regions worldwide. The evidence ultimately supports the notion that social sustainability matters not only in its own right but also instrumentally, because it is associated with reduced poverty and increasing income.

This article is organized as follows. Section 2 reviews the existing literature defining social sustainability and discusses the challenges in arriving at a consensus definition and measurement. Section 3 proposes an alternative, pragmatic approach based on an inclusive and utilitarian definition—away from rigid characterizations—that leads to a global database of social sustainability indicators. Using this database, we can measure each of the social sustainability dimensions we judge to be most meaningful. In section 4, we use those indicators to diagnose how social sustainability is associated with levels of monetary poverty, per capita GDP, and income inequality. Section 5 concludes with several policy implications associated with our key findings.

2. Existing definitions of social sustainability: why is it so difficult to define and measure?

Social sustainability comprises the multiple social aspects of sustainable development. The concept of sustainable development was defined by the World Commission on Environment and Development (1987:43) as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*". This definition questions whether natural resources can be infinitely substitutable, that is, whether technology can ensure the infinite exploitation of natural resources. Sustainability rests on the premise that the circumstances of those who are in need can and must be improved without further degradation of the ecosystem (ICA 2016). Over time, social aspects started to appear alongside the dominant environment-economy tension embedded in the original definition of sustainability (Giddings, Hopwood and O'Brien 2002, Rasouli and Kumarasuriyar 2016). The definition in the 1992 Earth Summit Agenda 21 implicitly mentioned human development and the social dimensions of sustainability. These were included, however, only in a subordinate role, as a contributor to the preservation of the environment. Since then, social sustainability has continued to gain weight in the sustainability debate (Turkington and Sangster 2006), prompting a growing realization that neither social, environmental, nor economic sustainability can be considered in isolation but only in relational terms (Becker et al 1999, World Bank 2013, Purvis, Mao and Robinson 2019). As part of this process, themes included in social sustainability discussions like basic needs, poverty reduction, human development, livelihoods, and equity have been recently and increasingly complemented by themes of identity, sense of place, and the stability and security of communities (Glasson and Wood 2009). Some scholars and practitioners have even started to frame social sustainability as the dominant dimension of sustainability. For example, under the social and solidarity economy framework, market-based mechanisms and green economy policies are envisioned as taking place under a form of sustainable development that protects the rights of individuals and communities foremost (UNRISD 2016).

Unfortunately, the increasing awareness of social sustainability has not translated into a consensus, operational definition. The reasons for this include the concept's intangibility, multidimensionality, dynamic characteristics, context-dependency and the need for conceptual flexibility to address its multidisciplinary nature (See Maloutas 2003; McKenzie 2004; Littig and Griessler 2005; Colantonio 2010; Dempsey et al. 2011; Bostrom 2012; Ahman 2013; Ghahramanpouri, Lamit and Sedaghatnia 2013; Purvis, Mao and Robinson 2019). In fact, scholars have recently described the literature on social sustainability as "fragmented, complex, vague and chaotic," highlighting the ongoing lack of clarity as to what it really means, its

dynamics, and how it should be articulated in the implementation of policies (Mehan and Soflaei 2017: 297). McKenzie (2004) pragmatically advocates for agreeing on its components, guiding principles, attributes, and the process and conditions under which successful social sustainability takes place, rather than seeking to determine ever-elusive definitions.

A few common building blocks emerge from that pragmatic approach. Social sustainability, as is the case with sustainability more generally, is neither an absolute nor a constant (Dempsey et al 2011). It is a dynamic concept, subject to change, context, and scale. Social sustainability has an intertemporal and future focus. Social sustainability intrinsically ties current generations to future ones—be it with respect to basic needs, wellbeing, equity, participation, or inclusion. It links historical events and processes, such as chronic injustice or inclusion, with present and future considerations, thus connecting structural with contemporary circumstances. Others have emphasized that social sustainability is about the process itself of moving towards a just society for current and future generations (Partridge 2005, Castillo et al 2007). At a more local level, social sustainability is a process for creating sustainable, successful places that promote wellbeing as defined by people who live and work in the area (Woodcraft et al 2011).

Another relevant and commonly-discussed aspect is scale. While social sustainability is a global concept, it can also take into account national and sub-national specificities. For example, sustainable communities can be found within cities in particular. Scholarly work has often focused on cities and their continuing ability to function as a long-term viable setting for human interaction, communication and cultural development, encouraging social integration and improved quality of life for all segments of the population (see Yiftachel and Hedgcock 1993; Polese and Stren 2000; Barron and Gauntlett 2002). Sustainable communities constitute a setting for long-term human activity and interaction that is equitable, inclusive and sustainable in the broader sense of the term (economically and environmentally as well as socially), thus delivering democratic, diverse and connected communities (Bramley and Power 2008). This implies that communities should not feature discriminatory practices—engaging in racism, xenophobia, ageism, among others—that hinder individuals from meaningful participation in economic, social and political matters (Pierson 2002; Ratcliffe 2000). From this perspective, sustainability in communities is associated with social capital and social cohesion, concepts which encompass social networks, norms of reciprocity, and features of social organization at that scale.

The multiplicity of principles, attributes, conditions and functions used to approach social sustainability in the academic literature has prevented the emergence of a dominant consensus definition. Instead, we have vague, partial, or long definitions, which are difficult to articulate in precise measurements. By contrast, the evolution in the definition and measurement of poverty offers relevant insights. Even a pragmatic consensus on what constitutes monetary poverty and how to measure it—through the USD 1 per person per day and subsequent updates—has allowed decades of sprawling comparable statistics, monitoring, and research. The operational consensus on a simple definition of monetary poverty has further encouraged alternative definitions and measurements. In fact, the literature on poverty has made significant strides beyond monetary poverty concepts and measurement, leading to the increasingly influential conceptualization and measurement of multidimensional poverty. This evolving consensus has delivered an impressive body of evidence—including dissenting work—contributing to further developments in concepts (e.g., relative vs absolute poverty); definitions (national vs international poverty lines),

measurement (MPI vs MODA multidimensional poverty measurements), and analytics (from impact evaluations to fiscal incidence analysis). Social sustainability has lacked a similar conceptual, definitional, and empirical development.

Rather than providing yet another contested definition of social sustainability, we propose focusing on meaningful indicators that capture social sustainability comprehensively and flexibly. The result is a global dataset of social sustainability indicators, the Social Sustainability Global Database (SSGD), which aims to shift the focus away from elusive definitions and towards insightful analytics on social sustainability itself.

3. Constructing the Social Sustainability Global Database (SSGD)

Generating a global database of social sustainability indicators contributes to expanding the current evidence in four ways: one, it allows the *benchmarking* of those indicators between countries; two, it describes social sustainability conditions or *profiles* within a given country; three, it expands the *analytics* around social sustainability; and four, it *monitors* country, regional, or global social sustainability trends over time.

Figure 1 details the four steps used to construct the global database. First, we **mapped available social sustainability indicators**. We conducted a thorough review of the indicators used by different authors as well as available international and national data sources and evaluated whether the existing data can be feasibly disaggregated. Table 1 below reports the chosen social indicators and the available disaggregation of each indicator. This mapping exercise identifies 11 data sources with fitting indicators related to social sustainability. These sources include harmonized living standards and income and expenditure household surveys from the World Bank's Global Monitoring Database (GMD); regional databases such as Afrobarometer, Arab Barometer, Asian Barometer, and Latinobarómetro; and global databases such as the Armed Conflict Location & Event Data Project (ACLED), Varieties of Democracy (V-DEM), World Development Indicators, Worldwide Governance Indicators, World Justice Project, and World Values Survey. Using those sources, we identified 71 variables that maximize the number of countries included in the database, as detailed below. The database contains 230 countries and territories for the period comprising 2016-2020. When an indicator has data available for several years within that period, the database includes the most recent one.

Figure 1. The process of creating the Global Database
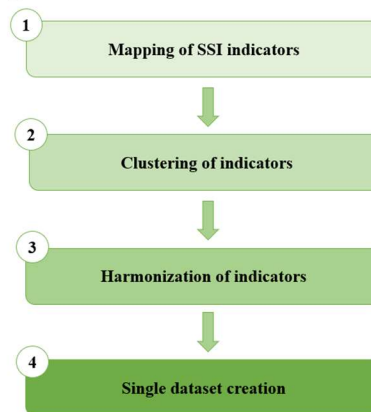
Source: Authors

Next, we clustered selected indicators into four components of social sustainability. While the purpose is not to impose a rigid conceptual organization upon the selected indicators, social sustainability indicators are grouped into the smallest possible number of categories that bring the maximum number of conceptually similar indicators together. Indicators are clustered in each component based on the review of current literature. The resulting components are social inclusion, resilience, social cohesion, and process legitimacy. With these components, we seek to capture the extent to which societies are willing to work together to overcome challenges, deliver public goods, and allocate scarce resources in a way that is perceived as legitimate and fair, so that all can thrive over time. Challenges to social sustainability include climate change, pandemics, and natural disasters, civil conflict, and war. These components emphasize outcomes that shape social sustainability as well as the processes by which decisions are made—that is, both the "what" of development and the "how" (Barron et al 2022).

By *social inclusion* we refer to the process of creating opportunities for all people by addressing deep systemic inequalities that create those unequal barriers in the first place. It involves improving the ability of all to access basic services and markets as well as political, social, and cultural spaces in order to participate in society with agency and dignity.

We define *resilience* as the ability of everyone in society, including poor and marginalized groups, to withstand shocks and to keep their culture intact. Resilience enhances the capacity of individuals, communities, societies, and cultures to live with and adjust to change, and to respond to threats.

Social cohesion encapsulates the sense of purpose, trust, and willingness to cooperate within and between groups and with governments in the interests of common prosperity. This component informs us about the extent to which individuals and communities act based on interpersonal and institutional trust, about their attitudes towards minority groups, and how safe they feel. Cohesive societies can be found in rich and poor, peaceful and conflict-affected contexts.

We define *process legitimacy* as the procedures for managing change that engage with local norms and values, and reconcile opposing viewpoints, in order to arrive at decisions perceived to

be sufficiently fair, credible, and acceptable by a community or society. The concept of process legitimacy seeks to capture the importance of grounding decisions in a process that reflects established authorities, rules, norms and values—often built up over many generations—and perceptions of who benefits from decisions in a given society.

Figure 2 below depicts a funnel and filter suggesting that inclusion, resilience, and cohesion interact and combine through process legitimacy to produce social sustainability—a broad quality that is greater than the sum of its parts and that supports and reinforces its own constituent elements.

Figure 2. Social sustainability components to be measured
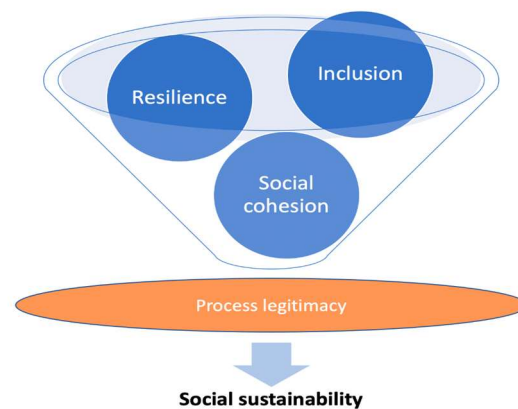
Source: Barron et al (2022)

Social sustainability is most effective when all its dimensions are present and work in the same direction—for example, to reduce poverty—thus offering a virtuous and self-reinforcing circle that helps drive development, boost prosperity, or sustain peace. Nonetheless, they do not always move together. Some of the most resilient societies are also the least inclusive, for example, while others characterized by limited voice and accountability nonetheless appear to be durable. Likewise, social sustainability is integrally linked to both economic and environmental sustainability, whereby each dimension can positively or negatively affect the others, and all three can be destabilized by any number of cross-cutting risk factors.

The third step in the process is the **harmonization of indicators**. We first identified variables for each country in the World Bank's harmonized GMD. We worked with 141 country databases to compile them into a single file that allows for country comparisons. In a second stage, we extracted the indicators of interest from the regional and global sources. We then proceeded through an overall harmonization process, identifying and analyzing the extent to which questions (and, ultimately, indicators) were comparable across sources. That involved exploring the exact wording of the question; the age, gender, and status (i.e., household head vs another household member) of the survey respondent; the unit of analysis (individual vs household) and the data source's geographical representation (administrative levels and urban-rural). Small differences in the wording of some questions from different sources were assessed and categorized accordingly. For example, the indicator that captures freedom of expression, namely

"*share of population that agrees they are free to express what they think*", derives from three different sources, with the original questions referring to freedom to say what you think; the extent to which freedom to express opinions is guaranteed; and agreement with the statement that people are free to say what they think without fear. In other cases, questions asked in different sources were judged to be too different to be harmonized. This is the case for the internet use indicator, which derived from several different sources, one of which was not possible to merge with the others given that it referred to using the internet as a source of information. As a result, two indicators were generated: internet use and internet use for information purposes. A codebook is included in online Annex A that shows the various definitions of variables and their differences in wording. Missing values is another issue that required harmonization. In the global dataset, we assume that missing values for up to 5 percent of the sample are either random or do not cause a significant bias. When missing values exceed that cutoff (typically for sensitive questions in perception surveys), the global database does not include that variable and looks for a close alternative in another data source.

The final step is the **consolidation in a single dataset** of harmonized social sustainability indicators and other indicators of interest for our analysis. The consolidation exercise consists first of selecting a reference period. In order to maximize the number of variables and countries, we refer to a "most recent" period comprising 2016 to 2020, instead of a single baseline year. A single baseline year would require a degree of artificial alignment by updating data from a previous year or simply losing information that is not reported for the year of reference. Once we had processed all the indicators from the different sources within the 2016-20 period, we compiled them into two single datasets according to the source type (national vs regional and global). We next combined both datasets by country name into a single Stata file. Online Annex B contains a readme.file with instructions for creating the final version of the dataset, and all do.files are available upon request. The database final version contains 71 harmonized social sustainability variables: 23 in the social inclusion component, 18 in the resilience component, 20 covering social cohesion, and 10 for process legitimacy. In addition, we include 21 indicators covering per capita GDP, growth rates, monetary and multidimensional poverty, inequality (of incomes through the Gini coefficient), the World Bank's Human Capital Index, fertility rate, equality of opportunity and shared prosperity, among others (see list online Annex A), in order to analyze their linkages with social sustainability indicators.

The resulting Social Sustainability Global Database (SSGD) encompasses 193 countries and 37 territories across seven world regions, accounting for 98.7 percent of the global population (see Annex 1 for the list of countries and territories). Table 1 lists all the variables in the SSGD that correspond to each of the social sustainability components (for exact definitions, see the codebook reported in online Annex A), as well as the number of countries for which a value for each variable is observed (Column "Obs").

Table 1. Social Sustainability Indicators in the Social Sustainability Global Dataset

Component	Indicators	Obs	Source
Social Inclusion			
Access to markets	Labor force participation rate	113	GMD
	Unemployment rate	109	GMD
	Percentage of people that work and are self-employed	79	GMD

	Percentage of people that work and have a contract	36	GMD
	Share of population that owns a bank account	105	FINDEX
Access to basic services	Percentage of households that have access to water	135	GMD
	Percentage of households that have access to sanitation	137	GMD
	Percentage of households that have access to electricity	104	GMD
	Percentage of households that have access to internet	50	GMD
	Share of population that uses the internet	42	AF, AB, ASB
	Share of population that uses the internet as a source of information	73	WVS
Access to human capital services	Percentage of people that are attending primary school/people of school age	114	GMD
	Percentage of people that completed primary education	107	GMD
	Percentage of people that are attending secondary school/people of school age	114	GMD
	Percentage of people with health insurance	28	GMD
	Percentage of people that have social security	30	GMD
Access to political and civic spaces (voice and agency)	Percentage of women in parliament	190	WDI
	Share of population that agrees it is a problem if women earn more than their husbands	75	WVS
	Share of population that agrees that when jobs are scarce, men should have more right to a job than women	76	WVS
	Share of women that are the chief earner in their households	18	LB
	Share of population that agrees or strongly agrees men make better political leaders than women	76	WVS
	Percentage of women 25 years or older that finished secondary school	144	GMD
	Share of women who believe a husband is justified in beating his wife	39	WB
Resilience			
	Percentage of households that own a computer	98	GMD
	Percentage of households that own a cellphone	92	GMD
	Percentage of households that have a TV	76	GMD
	Percentage of households that have a radio	55	GMD
	Percentage of households that have a washing machine	59	GMD
	Percentage of households that have a sewing machine	41	GMD
	Percentage of households that have a motorcycle	62	GMD
	Percentage of households that have a fridge	68	GMD
	Percentage of households that have a car	72	GMD
	Percentage of households that own their land	13	GMD
	Average share of assets in the household	101	GMD
	Share of population that receives government transfers (that is, individual is beneficiary of a state aid program)	18	LB
	Share of population that receives remittances	34	AF
	Share of population that saves some money	85	ASB, LB, WVS
	Share of population that has gone without enough food to eat in the past year	110	LB, AF, WVS
	Percentage of households that have more than one person working for pay	113	GMD
	Share of population affected by climate change (Index 0-1, low to high)	58	EMDAT
	Share of population that is considering moving because of climate change in the next five years	113	Gallup
Social cohesion			
	Share of population that says that most people can be trusted	86	ASB, LB, WVS
	Share of population that would not like to have homosexuals as neighbors	73	WVS

	Share of population that says they have confidence in the government	112	LB, ASB, AF, AB, WVS
	Share of population that says they have confidence in the police	113	LB, ASB, AF, AB, WVS
	Share of population that says they have confidence in the elections	75	AF, LB, ASB, WVS
	Share of population that says they have confidence in the justice system	101	AF, LB, ASB, AB, WVS
	Share of population that feels insecure living in their neighborhood /town/ village	85	LB, ASB, WVS
	Share of population that has often or sometimes felt unsafe from crime in their own homes in the past year	75	WVS
	Share of population that was victim of a crime in the past year	82	LB, WVS
	Share of population that says racist behavior is very or quite frequent in their neighborhood	74	WVS
	Share of population that voted in the last national elections	106	LB, ASB, WVS
	Share of population that has ever attended a demonstration or protest march	102	AF, AB, ASB, WVS
	Share of population that agrees they are free to express what they think	42	AF, AB, ASB
	Share of population that agrees they are free to join any organization they like without fear	42	AF, ASB, AB
	Share of population that got together with others to try to resolve local problems	14	ASB
	Share of population that are active members of organizations	78	ASB, WVS
	Share of population that participates in voluntary associations, organizations or community groups	43	AF, AB
	Fatalities due to violence index (0-1, low to high)	205	ACLED
	Number of violent events in 2020	205	ACLED
	Homicide index (0-1, low to high)	90	WDI
Process Legitimacy			
	Rule of Law [The extent to which agents have confidence in and abide by the rules of society, including the quality of contract enforcement and property rights, the police, and the courts, as well as the likelihood of crime and violence]	209	WGI
	Government effectiveness [The quality of public services, the capacity of the civil service and its independence from political pressures, and the quality of policy formulation]	209	WGI
	Control of corruption [The extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests]	209	WGI
	Citizen satisfaction with the education system and schools (0-1)	59	Gallup
	Citizen satisfaction with the health care system (0-1)	59	Gallup
	Life and security are effectively guaranteed – Index (0-1, from low to high)	139	WJP
	Government powers are limited by the judiciary – Index (0-1, from low to high)	139	WJP
	Equal treatment and absence of discrimination – Index (0-1, from low to high)	139	WJP
	Government regulations are applied and enforced without improper influence – Index (0-1, from low to high)	139	WJP
	People can access and afford civil justice – Index (0-1, from low to high)	139	WJP

Note: The sources listed above are GMD, Global Monitoring Database; AF, Afro Barometer; AB, Arab Barometer; ASB, Asian Barometer; LB, Latinobarómetro; WDI, World Development Indicators; WB, World Bank; WVS, World Values Survey; EM-DAT, International Disaster Database; ACLED, the Armed Conflict Location & Event Data Project; WJP, World Justice Project; WGI, World Governance Indicators.
Source: Social Sustainability Global Database 2022; Social Sustainability Global Database 2022 Codebook.

4. Results

4.1 Indices

Having constructed the global database, we next analyze how each component of social sustainability relates to poverty and income levels. Even a simple non-causal analysis can provide useful insights on, for example, countries' ability to reduce poverty levels or how variation in levels of income translates into differences in the levels of inclusion and equality. A specific question is addressed in this section: *Is social sustainability unambiguously associated with reduced poverty levels and higher per capita income?*

To address this question, we create a set of indices for each of the four social sustainability components described earlier. Each of these indices includes equally weighted indicators that reflect the level of social inclusion, resilience, social cohesion, and process legitimacy in a given country. Including the selected indicators for each component allows for the largest number of countries in the empirical exercise while meaningfully covering different aspects between and within social sustainability components. We select these indicators following three criteria: (a) indictors capture outputs or outcomes that describe the level of the social sustainability dimension; (b) indicators are either objective or capture the perceptions of vulnerable groups; (c) indicators are univariate rather than capturing multiple and complex interactions between concepts. In other words, we avoid to the extent possible indicators capturing inputs or drivers; experts' opinions on others' social dimensions; and the indexing of indices. When it is not possible to adhere to all these three criteria—typically because of data constraints severely limiting the availability of indicators—we select well-documented, validated and reputed experts' opinion sources and indices. Following the most parsimonious definition, each of the four indices weights its indicators equally. In practice, the index for each social sustainability component is defined at the national level. Constructed indices go from 0 to 1 and are monotonically built in such a way that lower values represent lower social sustainability.[1]

We conducted robustness checks to see the sensitivity of results to the number of indicators used in each component, alternative choices of indicators across indices, and non-linear functional forms for the index. Alternative indices are also constructed using a geometric mean to aggregate indicators within the index so as to avoid the disproportionate influence of outlier observations. These checks confirm our findings are robust: most of our key findings do not change in terms of the direction and strength of correlations when the indices are constructed in alternative ways.

Social Inclusion Index (P_1)

The Social Inclusion index is composed of six indicators capturing various dimensions of social inclusion: labor force participation; financial inclusion (measured via ownership of a bank account); access to basic services (both access to electricity and adequate sanitation); access to education (secondary enrolment rate); and access to political spaces by women (captured by their

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[1] Whenever an indicator was originally defined in a negative manner, that is, a higher value captures lower social sustainability, the reverse of that indicator is used to construct our indices (that is, 1 minus its original value).

proportion of seats in national parliaments). Each indicator is expressed as a share between 0 and 1. Table 2 reports the variables used and their original source. The social inclusion index is constructed as follows:

$$P_1 = \sum_{i=1}^{K} \frac{1}{K} V_{1i}$$

Where V_{1i} is the i-th variable in the social inclusion index and K represents the number of indicators included in the indices.

Resilience Index (P_2)

The Resilience index comprises five indicators. Three capture aspects of resilience such as the ability to save money; diversify sources of income; and own assets that can be potentially used or leveraged to confront shocks. Two other indicators capture the outcomes of resilience: the extent to which households enjoy food security, and their willingness and ability to move because of climate change. Table 2 below reports the specific variables used. The resilience index is constructed as follows:

$$P_2 = \sum_{i=1}^{K} \frac{1}{K} V_{2i}$$

Where V_{2i} is the i-th variable in the resilience index, and K again represents the number of indicators in the indices.

Social Cohesion Index (P_3)

The social cohesion index contains seven indicators. Three indicators capture interpersonal and institutional trust: in other people, in the national government, and the police. Another indicator captures the share of the population that voted in the last national elections. The index also includes the share of population that are active members of organizations. The other two indicators capture two objective outcomes of the lack of cohesion: fatalities from homicides, and from violence in all types of conflict. These two variables are normalized from 0 to 1 to facilitate the aggregation of all indicators into a social cohesion index (See Table 2). This index is constructed in the same way as the previous two components:

$$P_3 = \sum_{i=1}^{K} \frac{1}{K} V_{3i}$$

Where V_{3i} and K are interpreted as above.

Process Legitimacy Index (P_3)

The Process Legitimacy index contains seven indicators that reflect both aspects of governance—related to rule of law, control of corruption, and judicial limits on government—and judicial integrity and fairness—captured by the accessibility and affordability of civil justice, the impartial enforcement of government regulations, the absence of discrimination, and the extent to which the rights of life and personal security are effectively guaranteed by the judicial power (see Table 2). The index follows the same structure as before.

$$P_4 = \sum_{i=1}^{K} \frac{1}{K} V_{4i}$$

Where V_{4i} and K are interpreted as above.

Table 2: Social sustainability indices

Variables	Country observations
Social Inclusion	
Labor force participation rate (0-1)	113
Share of population with a bank account (0-1)	105
Share of households without access to adequate sanitation (0-1)	137
Share of households with access to electricity (0-1)	104
Secondary enrollment rate (0-1)	114
Proportion of seats held by women in national parliaments (0-1)	190
Social Inclusion Index (0-1)	*73*
Resilience	
Index of average assets in household (normalized 0-1)*	101
Share of population that saves some money (0-1)	85
1 minus the share of population that has gone without enough food to eat in the past year (0-1)	110
Share of households with several sources of incomes (0-1)	113
Share of population that considers moving because of climate change reasons (0=1)	113
Resilience Index (0-1)	*40*
Social Cohesion	
Share of population that says that most people can be trusted (0-1)	86
Share of population that says they have confidence in the Government (0-1)	112
Share of population that says they have confidence in the Police (0-1)	113
Share of population that voted in the last national elections (0-1)	106
Share of population that are active members of organizations (0-1)	78
Index of fatalities from violence (normalized 0-1)**	205
Index of homicides (normalized 0-1)***	90
Social cohesion index (0-1)	*68*

Process Legitimacy	
Rule of law (normalized 0-1)	209
Control of corruption (normalized 0-1)	209
Government powers are effectively limited by the judiciary (score 0-1)	139
Equal treatment and absence of discrimination (score 0-1)	139
People can access and afford civil justice (score 0-1)	139
Government regulations are applied and enforced without improper influence (score 0-1)	139
The personal rights to life and security are effectively guaranteed (score 0-1)	139
Process Legitimacy Index (0-1)	*139*

Source: Social Sustainability Global Database 2022; Social Sustainability Global Database 2022 Codebook.
Notes: (*) Average set of assets that include computer, cellphone, radio, television, washing machine, sewing machine, car, fridge, motorcycle that is owned by a household in the country, normalized between 0 to 1 (1=having all assets considered).
(**) Index of fatalities due to violence in a country. The indicator is normalized across the whole country sample using $var\text{-}var_{min}/var_{max}\text{-}var_{min}$
(***) Index of the number of homicides per 100,000 inhabitants in a country normalized across all the countries in the sample using $var\text{-}var_{min}/var_{max}\text{-}var_{min}$

4.2 Linking social sustainability, poverty, inequality and income levels

We use country-level data to scatter plot the logarithm of per capita GDP in PPP (international dollars 2017) and each of the social sustainability dimension indices. Additionally, we also plot poverty headcount, using national poverty lines of each country's latest year with available information, against each of the indices. A third set of scatterplots looks into the relationship between each country's social sustainability and income inequality.

Figure 3 below shows how richer countries present higher values for each of the social sustainability dimensions. This means that there is a positive correlation between per capita GDP and social inclusion, resilience, social cohesion, and process legitimacy. Although the relationship is quite strong for the process legitimacy and social inclusion indices (P4 and P1), this is not the case for the two other dimensions. When focusing on poverty levels, societies with stronger social inclusion, social cohesion, resilience, and process legitimacy are also less poor. See figure 4 (and online annex C). Thus, worldwide, societies with greater access to markets and services; more trusting communities; individuals, communities, regions and countries more capable at confronting different types of shocks; and societies where governments are fairer and more transparent, are expected to be less poor. This is captured by the negative correlation between poverty headcounts and P1, P2, P3 and P4.
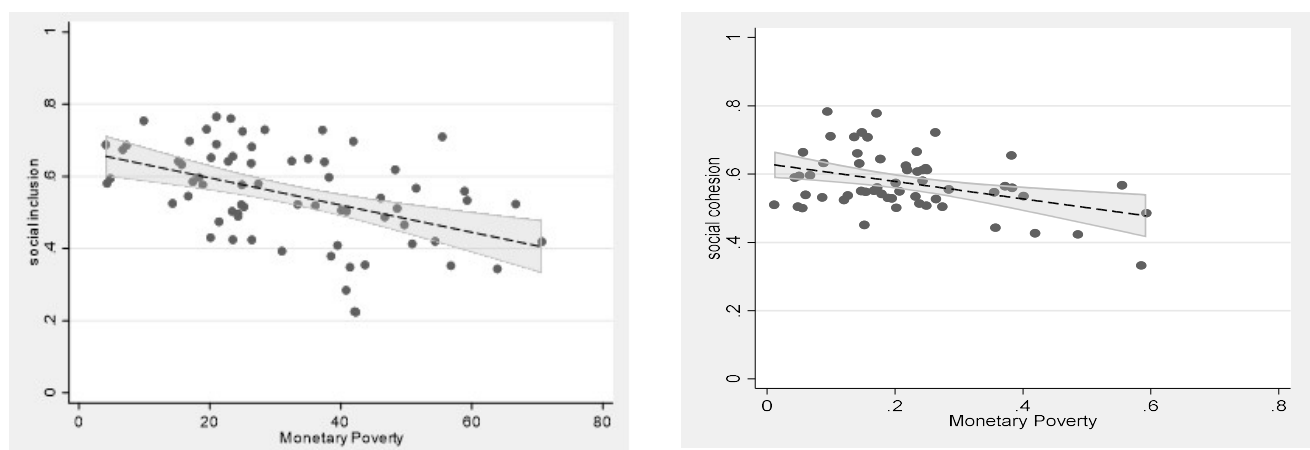
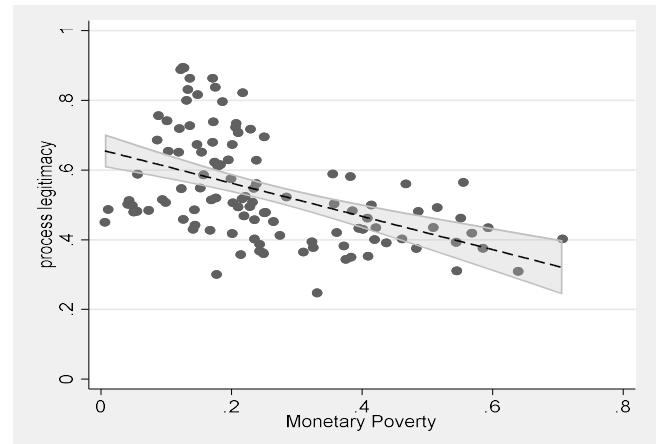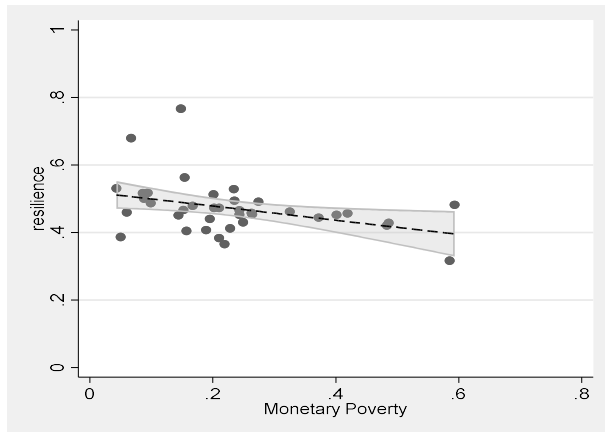**Figure 3. Log per capita GDP in PPP (2017) and social sustainability indices**
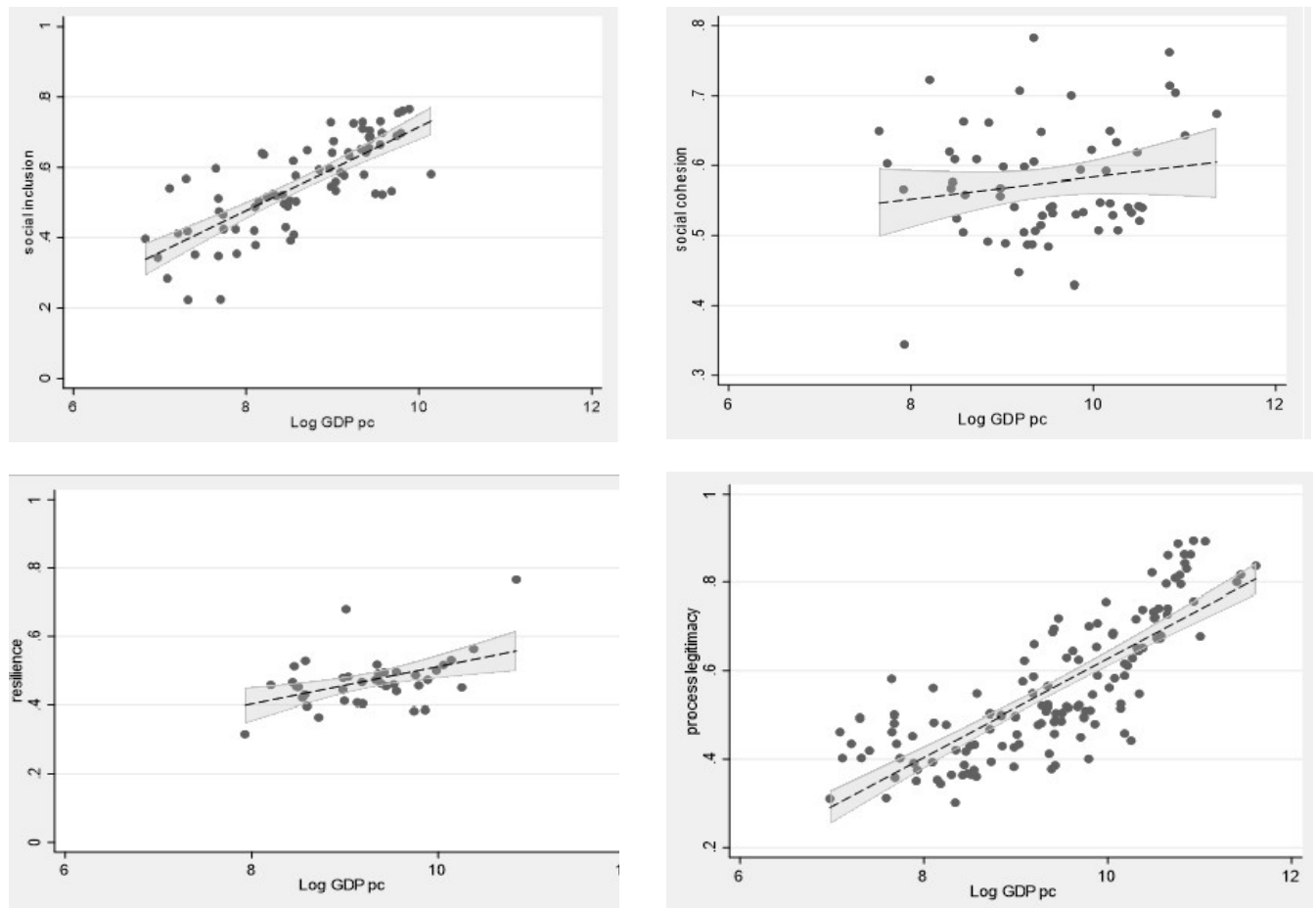
Note: Fitted values and 95% confidence interval shown
Source: Social Sustainability Global Database 2022

**Figure 4. Monetary poverty and social sustainability indices**

Social sustainability scatterplots also provide insights for redressing inequality. Certain aspects of social sustainability are associated with lower income inequality in countries, as shown in Figure 5. Higher levels of process legitimacy and, to a lesser extent, stronger social cohesion are associated with greater income equality. Put another way, rule of law, control of corruption, a fair judicial system and interpersonal and institutional trust are related with increased equality. By contrast, resilience and inclusion show a weaker, almost neutral, relationship with inequality. While we cannot claim causality, our results suggest that a highly targeted focus on improving access to services and markets and social protection (which are all captured by inclusion and resilience components) is unlikely to boost equality in a marked way. This might reflect the wide inequalities that such policies try to address in the first place, and/or the need for long-term investment in equal opportunities in education or health before results are rendered visible. All in all, while more cohesive and legitimate societies are more equal, inclusive and resilient societies can still coexist with high levels of income inequality.

Figure 5. Societies with legitimate governments are more equal
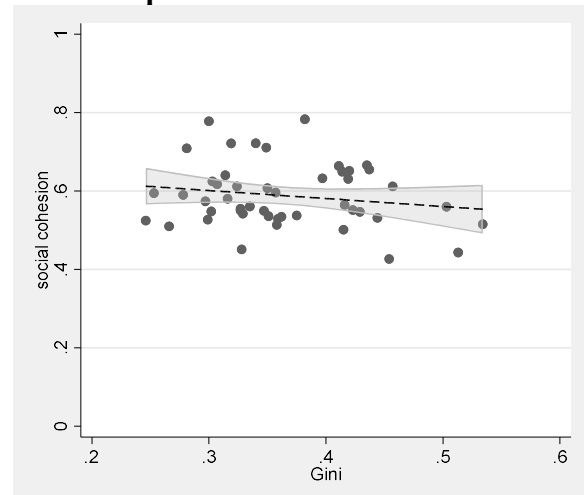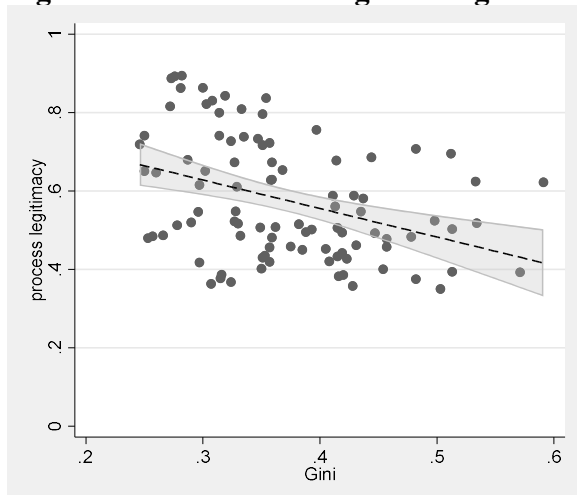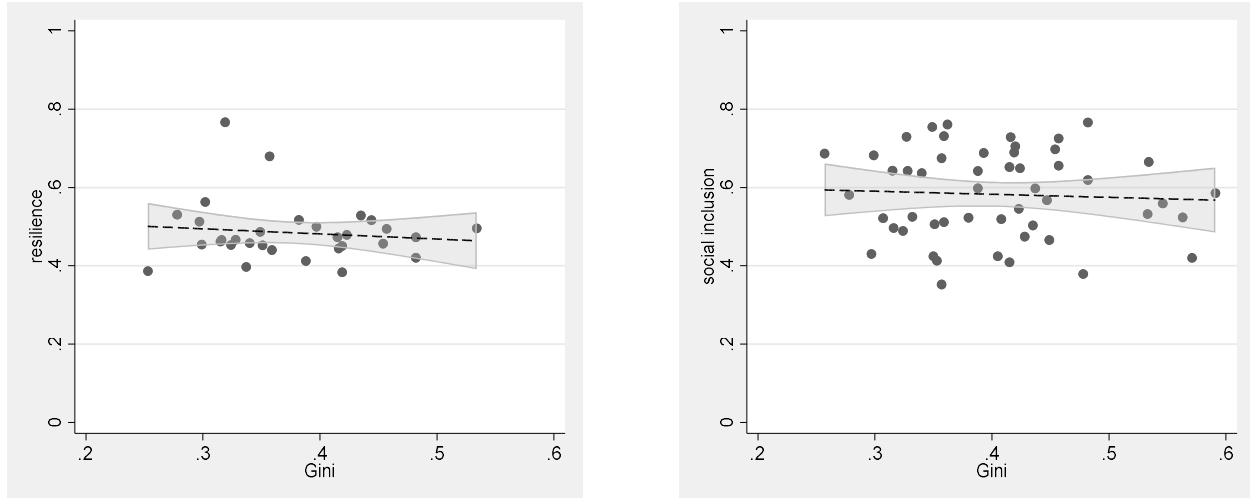
Note: Fitted values and 95% confidence interval shown
Source: Social Sustainability Global Database 2022

Social sustainability should therefore not be interpreted as just another strong correlate with high income and low poverty, whereby rich countries are inevitably more socially sustainable. Nor should we expect that poor economies inevitably fail in areas of inclusion, cohesion, resilience and legitimacy. Figure 6 illustrates this complexity. Rwanda, a low-income country, Lao PDR, a lower middle-income country, and Namibia, an upper middle-income country, all display middling levels of social inclusion. The level of social cohesion in Ethiopia is similar to that of Ecuador, despite the GDP per capita of Ecuador (US$ 5,600) exceeding that of Ethiopia (US$ 936) by more than five times in 2020.

Post-conflict countries can also display high scores in some surprising aspects of social sustainability. Differences are also wide within regions and despite similar socio-economic profiles. Process legitimacy in three countries that have recently undergone civil conflict—Sierra Leone, Philippines, and Lebanon—is well above that in Cambodia, which underwent a genocide several decades ago. Ghana and Senegal meanwhile have far higher levels of process legitimacy than Sierra Leone, despite also being West African countries.

In fact, top performers in our sample in terms of inclusion, cohesion, resilience and legitimacy vary in terms of income level, population size, country size, region and (recent) history of conflict. See table 3. By contrast, countries recently or currently afflicted by war, civil conflict and terrorism, recurrent natural disasters, and autocratic regimes are consistently among the worst performers.

Table 3. Top and worst five performers of social sustainability

Social inclusion	Resilience	Social cohesion	Process legitimacy
Top performers			
Mongolia	Kyrgyzstan	Ghana	Mauritius
Georgia	Indonesia	Jordan	Dominica
Thailand	Ghana	Thailand	St. Vincent & the Grenadines
Serbia	Kazakhstan	Tajikistan	St. Lucia
Costa Rica	Vietnam	Indonesia	Costa Rica
Worst performers			
Chad	Haiti	Haiti	Venezuela
Mali	India	Yemen	Cambodia
Niger	Dominican Rep.	Mexico	Congo, Dem. Rep.
Congo, Dem. Rep.	Belarus	Colombia	Afghanistan
Burkina Faso	Palestine	Tunisia	Cameroon

Source: Social Sustainability Global Database 2022

Figure 6. Income levels do not define social sustainability levels
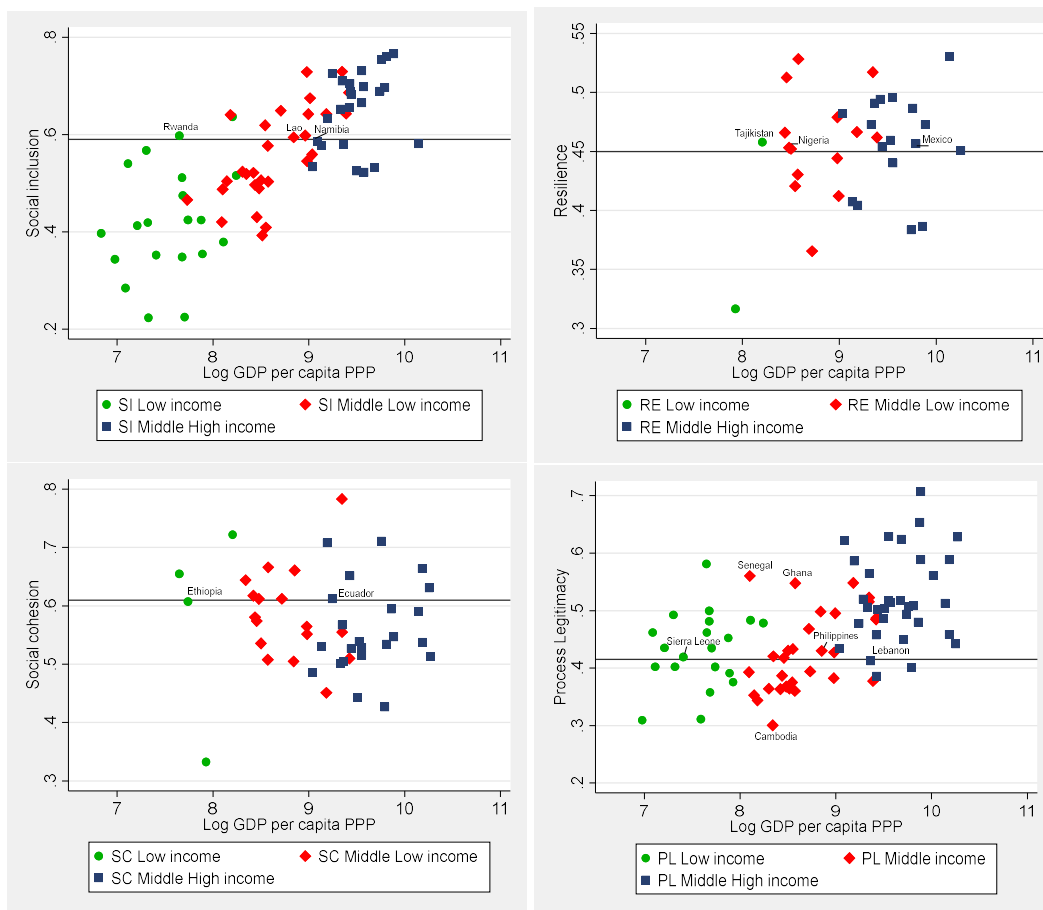
Source: Social Sustainability Global Database 2022

Table 4 shows the correlations between the logarithm of per capita GDP, poverty headcounts, and income inequality (Gini) by region worldwide. Globally, all indices are positively correlated with per capita GDP and negatively with monetary poverty and income inequality. Correlations are usually stronger for per capita GDP, followed by poverty and then inequality. By dimension, the correlation is strongest between each of the income variables and process legitimacy, followed by inclusion. When correlations are estimated by region, their statistical significance frequently wanes as a result of much-reduced sample sizes (results available upon request to the authors).

Table 4. Correlations between per capita GDP PPP international $ 2017 (log) and poverty headcounts at national poverty lines

	Per capita GDP (log)	Monetary Poverty	Income Inequality Gini
P1	0.77*	-0.46*	-0.05
P2	0.46*	-0.38*	-0.11
P3	0.17	-0.40*	-0.17
P4	0.80*	-0.47*	-0.38*

* Significant at 95% confidence interval
Source: Social Sustainability Global Database 2022

4.3 Robustness checks

We first check for the best-fitting association between each social sustainability component and per capita GDP, poverty and inequality. To do that we compare our results in figures 2 to 4 (fitting a linear association between social components and incomes) with an alternative nonlinear, quadratic, specification. For monetary poverty and income inequality, the linear specification is preferred across all components (as a quadratic fit no longer estimates a statistically significant correlation). In the case of per capita GDP, the quadratic form (first decreasing, then increasing) is preferred for resilience and empowerment (but not for inclusion and all three aggregated components). Table 5 below summarizes the results (see online Annex C for the actual results).

Table 5: Preferred specification of the association between social sustainability and incomes

	Log per capita GDP	Monetary poverty	Income inequality
P1: Social inclusion	Linear	Linear	Linear
P2: Resilience	Quadratic (U)	Linear	Linear
P3: Social cohesion	Quadratic (U)	Linear	Linear
P4: Process legitimacy	Linear	Linear	Linear

Source: Social Sustainability Global Database 2022.

We construct alternative social sustainability indices with three indicators instead of those used in the original indices to assess whether changing the number and composition of the indices has any effect on the results.[2] As can be seen in Figure 7 below, the correlations between P1, P2, P3, P4 and per capita GDP continue to be positive and stronger than for poverty and inequality (as was the case with the original indices with more indicators). Correlations with poverty are no longer negative for all four sustainability dimensions: more resilient societies are now linked with higher poverty levels. This is also the case with inequality: more resilient societies are also found to be associated with higher, rather than lower, inequality. Greater cohesion is now also associated with higher inequality. For the other dimensions of social sustainability, inclusion and legitimacy, their associations with poverty and inequality remain negative. The choice—and number—of indicators has an effect on the strength and robustness of correlations.

Figure 7. Log per capita GDP in PPP (2017), poverty headcount ratio at national poverty lines and income inequality, with alternative three-indicator social sustainability indices
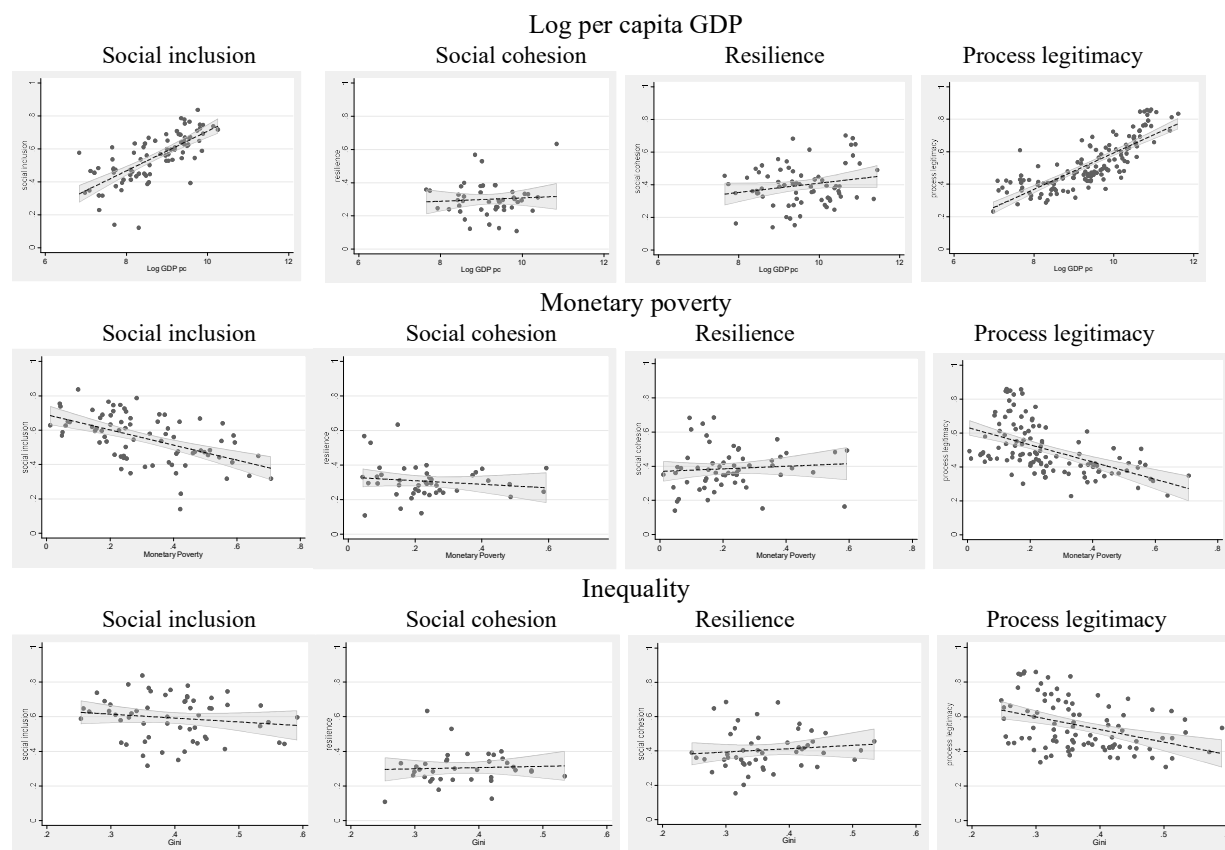

Note: Fitted values and 95% confidence interval shown
Source: Social Sustainability Global Database 2022.

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[2] In the specification reported in the main text, the social inclusion component includes access to labor force participation, one's own bank account, and improved sanitation. The resilience component includes the average share of assets in a household, share of population that saves money, and share of population with several income sources. The social cohesion component includes trust in people, share of people that is an active member of organizations, and share of people that voted. We tried other combinations of three variables per dimension and results hold. It is the correlation of social cohesion and resilience that become flatter, sometimes holding, at other points reversing the correlation. Results available upon request to the authors.

We also explore the relationship between the social sustainability indices and several development indicators such as the Human Capital Index (HCI) and the Human Development Index (HDI).[3] Additionally, we link social sustainability with fertility rates. Figure 8 shows that countries that perform better in terms of human development and human capital tend to have higher levels of social sustainability. At the same time, higher levels of social sustainability appear to be related with lower levels of fertility. The strongest associations between process legitimacy and social inclusion and income variables remains unchanged for these three non-income developmental outcomes.

Figure 8. Associations between the original social sustainability indices and alternative developmental outcomes, 2017

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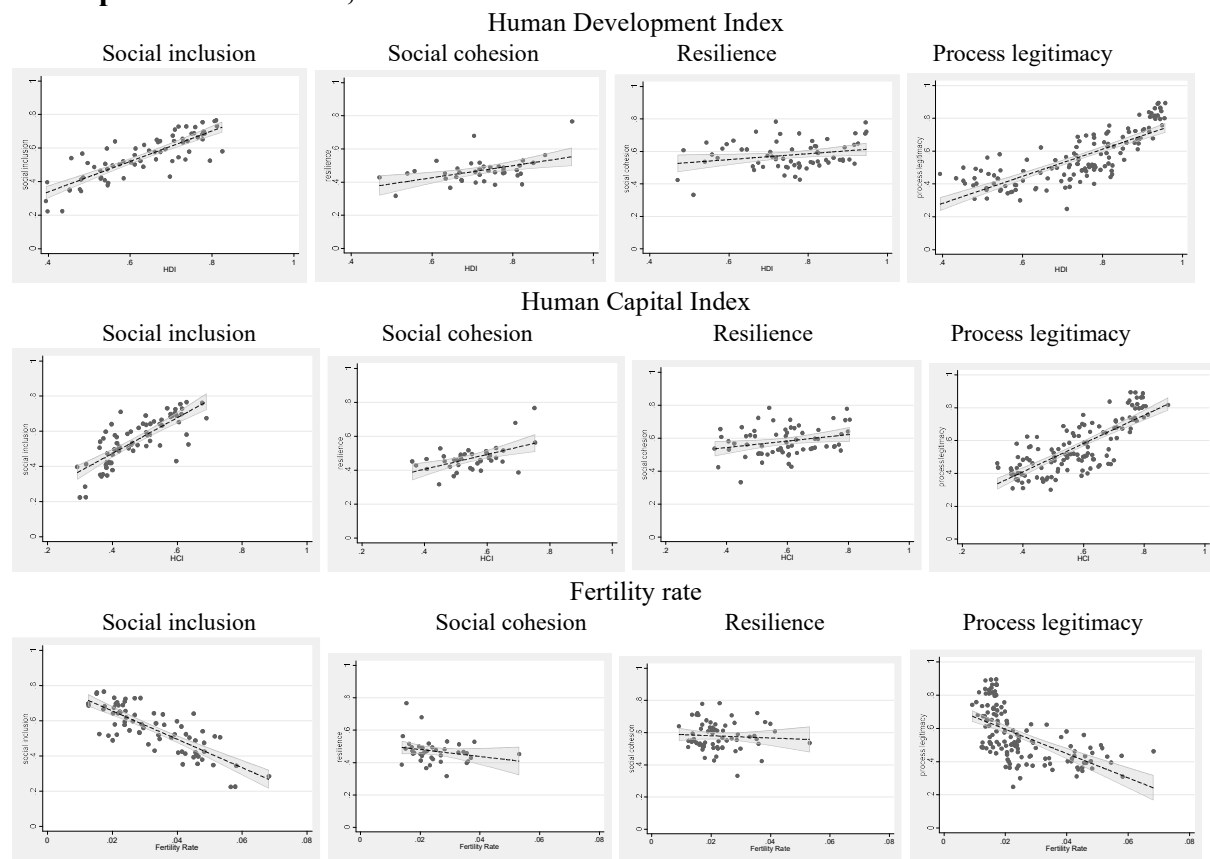
[3] The Human Capital Index (HCI) measures the human capital that a child born today can expect to attain by her 18th birthday, given the risks of poor health and poor education prevailing in her country. The index incorporates measures of child survival, stunting, adult survival rates, expected years of school, and international test scores. The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable, and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth. The education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school-entering age. The standard of living dimension is measured by gross national income per capita. Given the lack of a well-established equality of opportunity measure, the equality of opportunity index used in this analysis is an equally weighted composite of four variables that capture the extent to which individuals in a country face equal opportunities at different stages in life. These variables are: completion of birth certificates; the probability of survival at age 5; enrolment rates one year before compulsory age for primary school; and the presence of laws prohibiting different wages for women in the same jobs as males.

Next, we conduct a robustness check involving an alternative aggregation of indicators within social sustainability indices. We use geometric means to aggregate each indicator per component instead of the arithmetic mean. This implies that each index is expressed as:

$$P_j \;=\; \prod_K V_j^{1/K}$$

where for the j-th social sustainability component (j=1, 2, 3, 4), that is, social inclusion, social resilience and empowerment, the index captures the K-th root of product of their K indicators.

Figure 9. Log per capita GDP in PPP (2017), poverty headcount ratio at national poverty lines and income inequality using normalized indexes
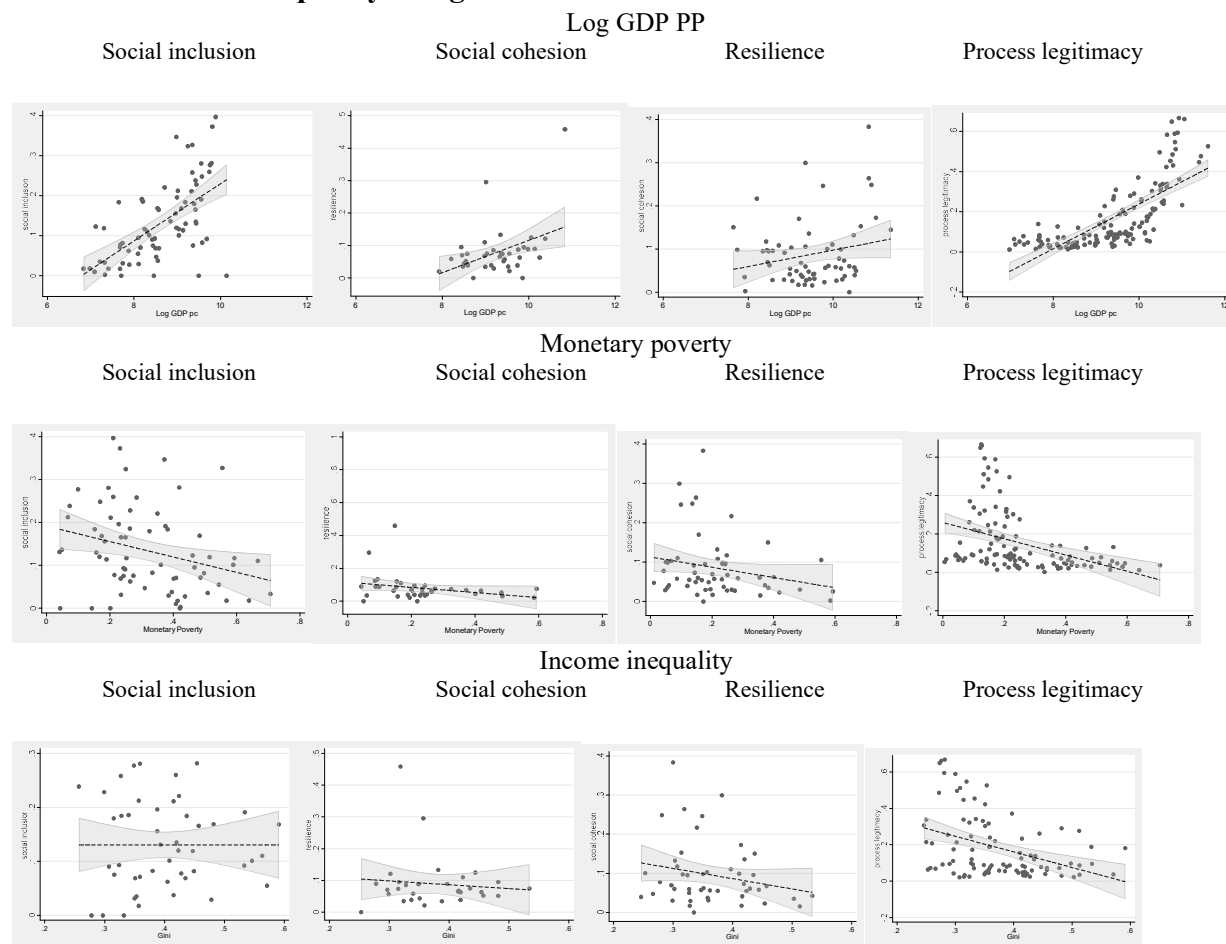
The choice of aggregation does not alter previous findings, as seen in Figure 9. All four social sustainability components have correlations with GDP, poverty, and inequality that follow the same patterns as indices aggregated following an arithmetic mean.

A final robustness check explores the extent to which social sustainability components, both individually and simultaneously, are associated with the variation of national poverty that cannot be explained by income level. This is an alternative way to empirically document the associations between social sustainability and income. Specifically, we regress national poverty rates against log per capita GDP, isolate the residual of that regression and test whether that residual is statistically associated with each the social sustainability components. Results, available upon request, show that there are some statistically significant associations between social sustainability components and the poverty residual. However, these associations are neither systematic nor robust to the choice of poverty rates, namely, national poverty lines and international poverty lines at US 1.90, 3.20 and 5.50 (2011 PPP) per person per day.

5. Conclusions

Sustainable development is impossible without all three pillars of sustainability: economic, environmental, and social. Yet despite growing awareness among policymakers, the social dimension of sustainable development has been often overlooked, poorly understood, and insufficiently analyzed. COVID-19 has raised the profile of social sustainability as the international community pledges to pursue a green, resilient, and inclusive recovery. Whether this emerging policy commitment remains aspirational or becomes a transformational paradigm in practice remains to be seen. In the meantime, more foundational work to improve our understanding of social sustainability is needed.

The complexity of social sustainability when it comes to its components, interactions and goals —contrasted, for example, with monetary poverty, fiscal and debt deficits, or greenhouse-gas emissions—has led to incomplete definitions and long lists of principles, attributes and conditions that a country, a city or a community must display to be socially sustainable. Such lists include aspects as wide-ranging as social equity, intra- and intergenerational wellbeing, quality of life, satisfaction of basic needs, social interactions and interconnectedness, freedom, safety, security, and access to basic infrastructure and services. Both approaches, either vague or long-winded characterizations, are unhelpful in delivering a definition that can be understood, agreed upon, and operationalized.

Instead of laboring to develop yet another definition, we construct a global database of indicators related to social sustainability from readily available data sources, covering many of the principles cited in the literature, flexibly clustered around four components, and conveniently aggregated in simple and parsimonious indices. This global database contains 71 indicators, covers 193 countries and 37 territories for the period between 2016 and 2020, and builds indices of social inclusion, resilience, social cohesion, and process legitimacy. The choice of components and the number of indicators in each of these components follows three simple criteria (being an outcome, capturing unidimensional concepts, and relying on objective data or direct vulnerable groups' perceptions). These criteria are sometimes relaxed when serious data

constraints exist. Also, they do not fully eliminate some degree of arbitrariness (for example, on the number of indicators, functional forms, or aggregation of indicators per components). However, they allow for monitoring, profiling, benchmarking, and analytical functions in a systematic way. They also allow for multiple robustness checks that confirm that our key results are not predetermined by these choices.

Our empirical exploration highlights three main results. First, a given country's social sustainability is positively correlated with per capita income levels and negatively correlated with poverty headcounts and income inequality. This is also true for each of the four components of social sustainability. Second, these associations are not equally strong. Process legitimacy and social inclusion tend to be more strongly associated with higher income and lower levels of poverty and inequality, the opposite being true for resilience and social cohesion. Third, results are generally robust to the choice and number of social indicators, different functional forms, and alternative developmental outcomes.

Both the global database and the analysis can be further expanded and improved. The global database would benefit from including a previous time period (and future ones) to enable long-term monitoring. Further variables need to be explored to increase the number of countries for which social sustainability indices can be constructed. Currently, only 40 countries have information for every resilience indicator, compared with 139 that have data for every process legitimacy indicator, something which has implications for the precision of each dimension. More analysis is also needed to understand how the variation of social indicators across vulnerability groups within a country affect our results. In addition, both the global database and analysis are conducted at national levels. Scholars working on social sustainability in the future will hopefully be able to draw on datasets from more countries with data representative at the subnational and even city level. This will allow for an enhanced within- and between-country monitoring of social sustainability. More analysis is also needed to understand the interactions between different components of social sustainability. For example, we know relatively little about the systematic association between social cohesion and resilience or, the extent to which process legitimacy is stronger in contexts with high levels of social inclusion. Providing insights on these interactions, their strength and their dynamics is fundamental for policy design that effectively considers synergies between social dimensions. Finally, future analyses might draw out not only correlations but also causal relationships between the different dimensions of social sustainability and various developmental incomes. For this, a more econometrically sound analysis based on temporal and panel data series of countries is required, which would need in turn to draw from a global database spanning several decades.

Despite these limitations, our analysis underlines several important policy messages. One, empirical evidence supports the claim that social sustainability has a concrete importance, because it is associated with reduced poverty, greater equality, and increased GDP per capita. While this only meets a narrow definition of development, and one that needs further substantiation and explanation, it systematically shows a foundational link between social sustainability and basic developmental outcomes. Two, it is not only desirable but also possible to reduce poverty and inequality while increasing social sustainability. This is the case because all social sustainability dimensions move in the same direction when it comes to poverty and inequality reduction (as well as other development outcomes such as human capital and human

development). Three, combating inequality through policies increasing access to markets, services and social protection are unlikely to be effective in their own: they need to be accompanied by strengthening social cohesion and ensuring fair and legitimate interactions between governments and citizens. Four, more developed and wealthier societies are not automatically more inclusive and resilient societies. Instead, social sustainability interactions are complex and contextual. Experience of conflict, fragility, authoritarian political regimes, and exposure to natural disasters, among other factors, all matter. Countries as diverse as Mongolia (social inclusion), Kyrgyzstan (resilience), Ghana (social cohesion) and Mauritius (process legitimacy) top our table of 130 countries and territories in each of these dimensions of social sustainability.

Finally, our analysis shows that while social sustainability is an elusive and intricate concept, it can be operationalized in a way that captures its complexity—and that this can be done in a relatively simple and parsimonious way, through a manageable set of meaningful indicators, flexibly used. Both our database and correlation analysis are first steps in that direction. They do not provide normative and precise policy designs but underscore that social sustainability does not only matter in itself, but potentially as an instrument associated with poverty reduction.

References

Ahman, E. 2013. Social sustainability - society at the intersection of development and maintenance. *Local Environment*, 18(10), 1153-1166.

APM Research Lab 2020. The color of coronavirus: COVID-19 deaths by race and ethnicity in the U.S. Available at: 2020https://www.apmresearchlab.org/covid/deaths-by-race

Alkire, S. & G. Robles. 2017. 'Multidimensional Poverty Index 2017: brief methodological note and results', OPHI MPI Methodological Notes 44, Oxford Poverty and Human Development Initiative, University of Oxford.

Azevedo, J.P. 2020. Learning Poverty: Measures and Simulations. Policy Research Working Paper, No. 9446. Washington, DC: World Bank

Balseca, E., J. Cuesta, R. Damania, S. Feng, J. Moon, J. Rentschler, J. Russ & Margaret Triyana. 2020. The RISE Framework, Washington DC: World Bank and Korea Green Growth Partnership. Available at: https://worldbankgroup.sharepoint.com/sites/ggs/Documents/RISE_MainReport_fnl.pdf

Barron, P., L. Cord, J. Cuesta, S. Espinoza, G. Larson and M. Woolcock. 2022. Social Sustainability: A Position Paper. Washington DC: World Bank.

Barron, L., and E. Gauntlett. 2002. Housing and Sustainable Communities Indicators Project: Stage 1 Report-Model of social sustainability. WACOSS(Western Australia Council of Social Service).

Bostrom, M. 2012. A missing Pillar? Challenges in theorizing and practicing social sustainability: introduction. *Sustainability: Science, Practice & Policy*, 8 (1), 3–14.

Bramley G, Power S. 2009. Urban form and social sustainability: the role of density and housing type. Environment and Planning B 36: 30–48

Becker, E., T. Jahn and I. Stiess, 1999. 'Exploring uncommon ground: sustainability and the social sciences', in Becker, Egon and Thomas Jahn (eds.) Sustainability and the Social Sciences: a cross-disciplinary approach to integrating environmental considerations into theoretical reorientation, Zed Books, London, pp.1-22

CARE. 2020. "Gender Implications of COVID-19 Outbreaks in Development and Humanitarian Settings," March 2020, https://reliefweb.int/report/world/gender-implications-covid-19-outbreaks-development-and-humanitarian-settings.

Castillo, H., Price, A., Moobela, C., & Mathur, V. 2007. Assessing urban social sustainability: current capabilities and opportunities for future research. The *International Journal of Environmental, Cultural, Economic and Social Sustainability*, 3(3), 39-48.

Colantonio, A. 2010. Urban social sustainability themes and assessment methods. Proceedings of the Institution of Civil Engineers: *Urban Design and Planning*, 163(2), 79-88.

Cuesta, J, Niño-Zarazúa, M. & B. Lopez-Noval. 2021 Global estimates of socially excluded populations. Mimeo, World Bank, SSI Global Practice. Washington DC: World Bank.

Cuthill, M. 2010. Strengthening the 'social' in sustainable development: Developing a conceptual framework for social sustainability in a rapid urban growth region in Australia. *Sustainable Development*, 18(6), 362-373.

Dempsey, N., G. Bramley, S. Power and C. Brown. 2011. The Social Dimension of Sustainable Development: Defining Urban Social Sustainability. *Sustainable Development* 19, 289–300.

Ghahramanpouri, A., H. Lamit and S. Sedaghatnia. 2013. Urban Social Sustainability Trends in Research Literature. *Asian Social Science*; Vol. 9, No. 4; 2013

Giddings B, Hopwood B, O'Brien G. 2002. Environment, economy and society: fitting them together into sustainable development. *Sustainable Development* 10: 187–196.

Glasson, J., and G. Wood. 2009. Urban Regeneration and impact assessment for social sustainability. *Impact assessment and project appraisal*, 27 (4), 283–290.

Henson, S., Kambhampati, U., Mogues, T. et al. 2020. The Development Impacts of COVID-19 at Home and Abroad: Politics and Implications of Government Action. *European Journal of Development Research* 32, 1339–1352

International Co-operative Alliance, ICA, 2016. Sustainability Reporting for Co-operatives: A Guidebook. ICA: Brussels.

Littig B, Griessler E. 2005. Social sustainability: a catchword between political pragmatism and social theory. International Journal of Sustainable Development 8: 65–79.

Maloutas, T. 2003. Promoting social sustainability, The case of Athens. *City*, 7(2), 167-181.

McKenzie, S. 2004. Social sustainability: towards some definitions. Hawke Research Institute, Working Paper Series No. 27, University of South Australia, Magill, South Australia.

Mehan, A. and S. Farzaneh. 2017. Social sustainability in urban context: Concepts, definitions, and principles. *Architectural Research Addressing Societal Challenges,* 293-299.

Partridge, E. 2005. Social sustainability': a useful theoretical framework. Paper presented at the Australasian Political Science Association Annual Conference, Dunedin, New Zealand.

Pierson J. 2002. Tackling Social Exclusion. Routledge: London

Polese, M., & Stren, R. 2000. The Social Sustainability of Cities: Diversity and the Management of Change. University of Toronto Press.

Pennington M, Rydin Y. 2000. Researching social capital in local environmental policy contexts. *Policy and Politics* 28: 233–249.

Penninx R, Kraal K, Martinello M, Vertovec S. 2004. Introduction: European cities and their new residents. In Citizenship in European Cities: Immigrants, Local Politics and Integration Policies, Penninx R, Kraal K, Martinello M, Vertovec S (eds). Ashgate: Aldershot; 1–16.

Purvis, B., Mao, Y. & D. Robinson, 2019. Three pillars of sustainability: in search of conceptual origins. *Sustainability Science* 14, 681–695.

Rasouli, A. and A. Kumarasuriyar. 2016. The Social Dimension of Sustainability: Towards Some Definitions and Analysis. *Journal of Social Science for Policy Implications* Vol. 4, No. 2, pp. 23-34

Ratcliffe P. 2000. Is the assertion of minority identity compatible with the idea of a socially inclusive society? In Social Inclusion: Possibilities and Tensions, Askonas P, Stewart A (eds). Macmillan: Basingstoke; pp. 169–185.

Roelen, K., Ackley, C., Boyce, P. et al. 2020. COVID-19 in LMICs: The Need to Place Stigma Front and Centre to Its Response. *European Journal of Development Research* 32, 1592–1612.

Secretaria de Salud de Mexico, 2021, COVID-19 MÉXICO: Panorama en población que se reconoce como indígena available at https://www.gob.mx/cms/uploads/attachment/file/636501/panorama-covid19-poblacion-indigena-29-abril-2021.pdf

Turkington R, Sangster K. 2006. From housing to social mix: housing's contribution to social sustainability. *Town and Country Planning* 75: 184–185.

UN. 2015. UN SDG Declaration: Transforming Our World: The 2030 Agenda for Sustainable Development. UN: New York.

UNRISD, 2016. Policy Innovations for Transformative Change: Implementing the 2030 Agenda for Sustainable Development. UNRISD: Geneva.

Valensisi, G. 2020. COVID-19 and Global Poverty: Are LDCs Being Left Behind?. *European Journal of Development Research* 32, 1535–1557

White House, 2021. FACT SHEET: President Biden and G7 Leaders Launch Build Back Better World (B3W) Partnership. JUNE 12, 2021 Statements and Releases, available at: https://www.whitehouse.gov/briefing-room/statements-releases/2021/06/12/fact-sheet-president-biden-and-g7-leaders-launch-build-back-better-world-b3w-partnership/

Woodcraft, S., Bacon, N., Caistor-Arendar, L., & Hackett, T. 2011. Design for social sustainability: A framework for creating thriving new communities. London: Young Foundation

World Bank 2022. Social Sustainability Global Database 2022. Washington DC: World Bank.

World Bank 2021 Global Economic Prospects. June 2021. Washington DC: World Bank.

World Bank. 2020. Poverty and Shared Prosperity 2020: Reversals of Fortune. Washington DC: World Bank.

World Bank. 2013. The World Bank Group Goals: End Extreme Poverty and Promote Shared Prosperity. Washington DC: World Bank.

World Health Organization, WHO. 2021. WHO Coronavirus (COVID-19) Dashboard. Available at: https://covid19.who.int/table

Yiftachel O, Hedgcock D. 1993. Urban social sustainability: the planning of an Australian city. *Cities* 10: 139–157.

Annex 1: List of countries and territories

Afghanistan, Albania, Algeria, American Samoa*, Andorra, Angola, Anguilla*, Antigua and Barbuda, Argentina, Armenia, Aruba*, Australia, Austria, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Belize, Benin, Bermuda*, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, British Virgin Islands*, Brunei Darussalam, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Canada, Cayman Islands*, Central African Republic, Chad, Channel Islands*, Chile, China, Colombia, Comoros, Congo, Dem. Rep., Congo, Rep., Cook Islands*, Costa Rica, Cote D Ivoire, Croatia, Cuba, Curacao, Cyprus, Czech Republic, Czechia*, Denmark, Djibouti, Dominica, Dominican Rep., Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Estonia, Eswatini, Ethiopia, Faroe Islands*, Fiji, Finland, France, French Guiana*, French Polynesia*, Gabon, Gambia, Georgia, Germany, Ghana, Gibraltar*, Greece, Greenland*, Grenada*, Guadeloupe*, Guam*, Guatemala, Guinea, Guinea Bissau, Guyana, Haiti, Honduras, Hong Kong Sar*, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Isle of Man*, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kenya, Kiribati, Korea, Kosovo, Kuwait, Kyrgyzstan, Lao, Latvia, Lebanon, Lesotho, Liberia, Libya, Liechtenstein, Lithuania, Luxembourg, Macau Sar*, Madagascar, Malawi, Malaysia, Maldives, Mali, Malta, Marshall Islands*, Martinique*, Mauritania, Mauritius, Mexico, Micronesia, Moldova, Monaco, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Netherlands, Netherlands Antilles*, New Caledonia*, New Zealand, Nicaragua, Niger, Nigeria, Niue*, North Macedonia, Northern Mariana Islands*, Norway, Oman, Pakistan, Palau*, Palestine*, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico*, Qatar, Reunion*, Romania, Russia, Rwanda, Samoa, San Marino, Sao Tome And Principe, Saudi Arabia, Senegal, Serbia, Seychelles, Sierra Leone, Singapore, Sint Maarten (Dutch Part), Slovak Republic, Slovenia, Solomon Islands*, Somalia, Somaliland*, South Africa, South Korea, South

Sudan, Spain, Sri Lanka, St. Kitts And Nevis, St. Lucia, St. Martin (French Part), Vincent and the Grenadines, Sudan, Suriname, Sweden, Switzerland, Syrian Arab Republic, Taiwan Roc*, Tajikistan, Tanzania, Thailand, Timor Leste, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Turkmenistan, Turks and Caicos Islands*, Tuvalu, Uganda, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Uzbekistan, Vanuatu, Venezuela, Vietnam, Virgin Islands (U.S.)*, West Bank and Gaza*, Yemen, Zambia, Zanzibar*, Zimbabwe.
(* identifies territories).

Online Annex A: [Codebook](#)
Online Annex B: [Readme.file](#)
Online Annex C: [Linear and nonlinear specification fits](#)