**Inclusive Absolute Well-being Changes: An Application with Multidimensional Cross-country Analysis**

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**Abstract**

The world has continued to witness prosperity in terms of poverty reduction and improved well-being, but it is vital to examine whether this improvement is evenly shared or is inclusive to all. In this paper, we use a general quantile-based approach based on absolute changes that allows robust examination of the inclusiveness of well-being for non-monetary indicators that are bounded in nature and can been represented in terms of both adequacies and shortfalls. Our empirical analysis of inclusiveness uses a multidimensional measure of well-being that is closely linked to the flagship global Multidimensional Poverty Index to examine the inclusiveness of well-being changes for 80 developing countries across six geographic regions. We observe robust improvements in well-being for most countries in our study, but only around three-fifths of all the countries show robust inclusiveness, while fewer than one-third of the countries in sub-Saharan Africa do so. Our proposed framework could play an important role in jointly meeting the SDG targets of reducing inequality within countries and reducing poverty in multiple dimensions.

**Keywords:** Inclusive well-being, shared prosperity, inclusive growth, inequality, consistency, bounded variable, counting approach, multidimensional poverty

**JEL Classification:** I3, I31, D63, O1

# Introduction

The world has witnessed significant reductions in monetary and multidimensional poverty, as well as improvements in various indicators of well-being. However, to fulfil the United Nations’ pledge to leave no one behind, it is imperative to ensure that the global improvement in well-being is inclusively and evenly shared by all. Various targets have been set in the Sustainable Development Goals (SDGs) agenda for this purpose. SDG target 10.1 on ‘reduc[ing] inequality within and among countries’, for example, requires progressively achieving and sustaining ‘income growth of the bottom 40 per cent of the population at a rate higher than the national average.’ This target is analogous to how the World Bank has tracked shared prosperity by comparing the growth rates of the average incomes of the poorest 40 percent of the population within developing countries to the growth rates of the overall average income (World Bank, 2018). The overall prosperity assessed by the growth in average income per capita is considered ‘inclusive’ within a country whenever the income growth rate of the poorest 40 percent is no slower than the country’s overall growth rate. The quantile-based approach to gauging shared prosperity has been argued to be a pragmatic application of the Rawlsian maximin principle (Basu 2000, 2013; Ferreira, Galasso, and Negre, 2018).[[2]](#footnote-2)

However, poverty and well-being are multifaceted and have many interlinked dimensions (Atkinson and Bourguignon, 1982; Sen, 1999; Narayan et al., 2000; Stiglitz et al., 2009; Alkire and Foster, 2011). SDG target 1.2, for instance, requires reducing ‘poverty in all its dimensions according to national definitions’, in addition to reducing extreme (monetary) poverty (SDG target 1.1). Most non-monetary dimensions of poverty and well-being are characteristically different from their monetary counterparts. For instance, most social indicators – both unidimensional and multidimensional – cannot register unbounded increase akin to their monetary counterparts.[[3]](#footnote-3) Many social indicators that capture well-being and deprivation are also either represented in terms of *adequacies* (e.g., literacy rate and mortality rate) or in terms of *shortfalls* (i.e., the lack thereof).[[4]](#footnote-4) In the multidimensional counting framework, for instance, it is common to either count the deprivations (Atkinson, 2003; Alkire and Foster, 2011) or equivalently count the attainments (Ura et al., 2012, Seth and Alkire, 2017; Alkire and Foster, 2019). In such situations, traditional measurement approaches – commonplace for monetary indicators – may become ineffective or even provide misleading conclusions.

In this paper, we make a theoretical as well as an empirical contribution to the literature. We contribute theoretically by presenting a quantile-based framework for capturing the inclusiveness of well-being changes built on absolute changes to ensure *consistency* – requiring that the comparison of well-being changes remains unaltered whether they are assessed in terms of adequacies or in terms of shortfalls. Our motivation for focusing on absolute changes is analogous to the proposal for using absolute inequality partial ordering for consistent inequality comparisons (Lambert and Zheng, 2011). Given the consistency requirement, we present our theoretical framework in terms of adequacies or from the perspective of changes in well-being, but our framework is also applicable for studying and analysing well-being changes using shortfalls. While the SDGs have focused only upon the bottom 40 percent, our proposed framework is more general and hence permits evaluation of inclusivity according to different quantiles.[[5]](#footnote-5) The framework can be used for assessing changes in well-being using readily available repeated cross-sectional datasets.

To ascertain whether well-being changes are inclusive, we propose that overall well-being be assessed as a quantile-weighted sum of average adequacy levels across quantiles and consequently the overall well-being *change* be presented as a quantile-weighted sum of *changes* in quantile averages. We characterize the restrictions on quantile weights by certain properties and show that lower quantiles should not receive lower quantile weights during aggregation. To capture the extent of inclusiveness of well-being changes, we additively decompose the overall change in well-being into two components: a change in the overall average; and a component capturing the extent of inclusiveness referred to as the *inclusivity premium*. A positive value of the inclusivity premium signifies that the overall improvement in well-being has been strictly inclusive.

We apply our proposed theoretical framework to analyse the inclusiveness of well-being changes in 80 developing countries using a multidimensional measure of well-being founded on the counting framework. The well-being measure is closely linked to the framework of the well-known global Multidimensional Poverty Index (MPI) and uses the same set of dimensions, indicators and weights. In the global MPI framework, a person living in a household is considered to be *deprived* in an indicator if their achievement fails to meet the deprivation cutoff for that indicator. A *deprivation score* for each person is obtained by taking a weighted sum of the indicators in which they are deprived, where weights sum to 1. In this paper, we consider the complement of the deprivation score to be an *attainment score*, which captures a person’s breadth of multiple attainments. A higher attainment score, which denotes the adequacy level, corresponds to higher well-being. Unlike the global MPI, which focuses on poor people only, our paper uses the entire distribution of attainment scores within countries.

To illustrate inclusiveness, we divide the entire distribution of attainment scores within each country and for each period into five quintiles (in this case). We use a set of rank-dependent quantile weights for the well-being measure, where we assign strictly larger weights to poorer quintiles so as to reward improvements among poorer quintiles more. Although 77 of the 80 countries register statistically significant increases in well-being, only 60 countries register statistically significantly positive inclusivity premiums; thus, lower quintiles in these countries register significantly faster improvements than average in absolute terms. On the other hand, a quarter (20) of all the countries in our study either register statistically significantly negative inclusivity premium – meaning lower quintiles in these countries register slower improvements than average – or inclusivity premiums are not statistically significantly different from zero. Geographic regional analyses show that most of these 20 countries reflecting uneven progress in well-being are in sub-Saharan Africa. The two countries with largest positive inclusivity premiums are Ghana and Lao PDR. We furthermore explore the non-linear relationship between our inclusivity premium and the shared prosperity premium (World Bank, 2018) as well as the global MPI. Our findings demonstrate that our proposed framework can provide novel insights over and above these existing measures.

As is customary in other applications, we specify a particular quantile-weight vector to study inclusiveness, but other alternatives are also admissible. We therefore introduce a methodology for checking robustness of well-being changes as well as inclusivity premiums to alternative quantile-weight vectors, drawing from Seth and McGillivray (2018). The robustness analyses show that the changes in well-being are robust for 76 countries, but the inclusivity premiums are robust with respect to admissible alternative quantile-weight vectors for only 54 countries, while the other 26 countries do not pass the robustness test. Of these 26 countries, 17 are from sub-Saharan Africa.

The rest of the paper is organized as follows. Section 2 presents the theoretical framework for assessing absolute change in well-being and its decomposition into two components. Section 3 presents the empirical well-being measure that we use for assessing inclusiveness, outlines the data for our analysis, and presents the national average attainment scores and quantile-wise averages across countries. Section 4 analyses the inclusiveness of well-being changes across countries. Section 5 compares our inclusivity premiums to the shared prosperity premium (relative) reported by the World Bank and the global MPI reported by the Oxford Poverty and Human Development Initiative (OPHI) and the United National Development Programme (UNDP). Section 6 presents the methodology for checking robustness and examines the robustness of well-being changes and inclusivity premiums to alternative quantile-weight vectors, while Section 7 concludes.

# Theoretical framework

Suppose a social planner aims to assess well-being in a hypothetical society using an indicator, whose values – referred to as *adequacy levels* – are bounded between a lower bound of and an upper bound of such that is strictly higher than , that is, . An example of adequacy levels could be attainment counts in the case of multidimensional poverty measurement, with and (Alkire and Foster, 2019). The adequacy levels of the society’s population in two periods are summarized by the cumulative distribution functions (CDFs) and , where and are all possible distributions of adequacy levels in period 1 and in period 2, respectively. A distribution can be divided into quantiles. For strict comparisons across time-periods, we assume to be fixed and denote the set of quantiles by . By construction, all quantiles for a given distribution are mutually exclusive and collectively exhaustive, and each quantile has uniform population share, that is, . Let us denote the average adequacy level within the th quantile of distribution by for all and for each time period , and the overall average adequacy level within by , such that for .

Well-being, denoted by , corresponding to distribution is obtained from the quantile-wise averages using the following additively decomposable measure:

|  |  |  |
| --- | --- | --- |
|  |  | (1) |

where is the -dimensional quantile-weight vector and is the quantile weight assigned to the th quantile average. For now, we do not assign any restriction on quantile weights, but we subsequently characterize desired restrictions through an axiomatic foundation. Let us denote the set of all possible -dimensional quantile-weight vectors by . Consider the special case where all quantile weights are equal and denote as the -dimensional *equal* quantile-weight vector, such that for all . In this case, or the well-being is equal to overall average adequacy level within . This type of additive structure to study absolute changes is not uncommon in the social welfare and social mobility literature. For example, Bossert and Dutta (2019) characterize additive measures to assess absolute changes in social welfare, while Palmisano and Van de Gaer (2016) and Seth and Yalonetzky (2021a) use the same in the assessment of absolute social mobility. Quantile-based approaches have also been proposed in the literature mainly for unbounded cardinal variables. Chenery et al. (1974), for instance, proposed a quantile-based approach to assess pro-poor income growth, whereas Sakamoto and Mori (2021) recently proposed a quantile mean comparison method as part of a new class of stepwise rank-dependent social welfare ordering.

We now introduce some notation on changes between two periods. We denote the change in the th quintile average between distributions and by for all and the change in the overall average by . The well-being measure in Equation (1) can then be used to measure the absolute change in well-being between two periods, denoted by – a mapping from the set of CDFs and and the set of quantile-weight vectors to the real line , as:

|  |  |  |
| --- | --- | --- |
|  |  | (2) |

Based on the fixed number of quantiles, the change in well-being measure, denoted by in Equation (2), is the quantile-weighted sum of changes in quantile-wise averages. Again, for the equal quantile-weight vector , as a special case, the change in well-being is simply equal to the difference in the overall average between and , that is, .[[6]](#footnote-6)

## Axiomatic foundation

To understand how our change measure responds to different transformations in quantile averages, we expect the measure to satisfy the following properties. The first standard property is *weak* *monotonicity*, which requires that the overall well-being should not register a fall (i.e., ) whenever there is no deterioration in any quantile-wise averages (i.e., for all ) between two periods. This property ensures that respects the directional changes in all quintile averages.

**Weak monotonicity.**For any , and , whenever for all .

We refer to the second property as *translation homogeneity*. The property conveniently requires that whenever there is an equal change in all quantile averages, then the same change should apply to the overall change. This property is similar in spirit to the linear homogeneity property elsewhere – requiring an overall well-being measure to change in the same proportion whenever all underlying components are scaled up or down by the same proportion (see Foster et al., 2013).

**Translation homogeneity.** For any , and , whenever for all .

We refer to the third property as *weak priority*, which requires that, all else unchanged, an improvement in the average within a poorer quantile (say, quantile ) should not lead to a lower well-being improvement than an equal amount of improvement in a less-poor quantile (say, quantile such that ). This property is crucial for incorporating (weak) inclusiveness of well-being changes and is important from both an egalitarian perspective (Sen, 1976) and a prioritarian perspective (Parfit, 1997). The property suggests providing no less priority to the improvements among those in the poorer quantiles.[[7]](#footnote-7)

**Weak priority.** For any , , and for some pair , whenever , for all and for all .

Based on the three properties – weak monotonicity, translation homogeneity and weak priority – Proposition 1 characterizes the restrictions on quantile weights that our change in well-being measure in Equation (2) should respect.

**Proposition 1.** A change in well-being measure satisfies weak monotonicity, translation homogeneity and weak priority if and only if: (i) for all , (ii) , and (iii) for all pairs .

**Proof.** See Appendix.

Proposition 1 shows that the quantile weights assigned to all quantiles are: (i) non-negative; (ii) sum up to one; and (iii) the quantile weights assigned to poorer quantiles are no lower than the quantile weights assigned to the less-poor quantiles, which ensures that the change in well-being measure is *weakly* inclusive.[[8]](#footnote-8)

## Assessing inclusiveness of well-being changes: inclusivity premium

To assess the inclusiveness of well-being changes, we decompose the change in well-being measure in Equation (2) into two components as follows:

|  |  |  |
| --- | --- | --- |
|  |  | (3) |

where . The first term on the right-hand side of Equation (3) is the change in the overall average adequacy levels between two periods, and the second term, , is the quantile-weighted sum of the differences for all . Each difference captures the change in the average within the th quantile compared to the change in the overall average adequacy level. We refer to as the *inclusivity premium*.[[9]](#footnote-9) Note that the inclusivity premium is always equal to zero by construction at the equal quantile-weight vector and so we are practically more interested in situations where the inclusivity premium is (strictly) positive.

We consider a well-being change to be *strictly* inclusive whenever every poorer quantile registers strictly higher improvement than every less-poor quantile, that is for all quintiles (except the least-poor quantile), that is, . Accordingly, in such a situation, the inclusivity premium should be *positive*, that is, . Proposition 2 presents the restrictions on quantile weights that enable the inclusivity premium to be positive, while denoting the set of quantile-weight vectors characterized in Proposition 1 by , as follows.

**Proposition 2.** For any and such that for all and for any , if and only if for all and for at least one .

**Proof.** See Appendix.

Proposition 2 shows that the restrictions – for all (i.e., all elements in excluding the highest quantile ) and for at least one lower quantile – are both necessary and sufficient for the inclusivity premium to be strictly positive whenever for all . Thus, according to Proposition 2, the set of quantile weights that are necessary and sufficient for the inclusivity premium to be positive is , or the set of all quantile-weight vectors characterized in Proposition 1 excluding the equal quantile-weight vector. Note that the inclusivity premium becomes higher for any two given distributions across two periods whenever larger quantile weights are assigned to lower quantiles.[[10]](#footnote-10)

# An empirical measure of well-being and the data

Well-being is intrinsically multidimensional (Atkinson and Bourguignon, 1982; Sen, 1999; Stiglitz et al., 2009). In this paper, we capture well-being by adopting a multidimensional counting approach (Atkinson, 2003; Alkire and Foster, 2011). Our approach is closely connected to the global MPI framework (Alkire, Kanagaratnam, and Suppa, 2020) – consisting of three dimensions and 10 indicators with weights of 1/6 for four indicators and 1/18 for the remainder.[[11]](#footnote-11) Within the global MPI framework, a person living in a household is considered to be *deprived* in an indicator if their achievement fails to meet the deprivation cutoff for that indicator. Customarily, a *deprivation score* for each person is obtained by taking a weighted sum of the indicators in which they are deprived, where weights sum to 1. In this paper, we consider the *complement* of a deprivation to be an *attainment*, and the complement of the deprivation score, which lies between 0 and 1, to be an *attainment score*.[[12]](#footnote-12) The attainment score, which is our adequacy level in this paper, indicates a person’s breadth of multiple attainments. A higher attainment score corresponds to higher well-being. For the ease of interpreting small changes, we normalize the attainment scores so that they lie between 0 and 100, and thus each attainment score lies between a lower bound of and an upper bound of 100. An attainment score equal to zero points signifies the lowest possible well-being (i.e., simultaneous deprivations in all 10 indicators) and an attainment score equal to 100 points signifies the largest possible well-being (i.e., no deprivation in any of the 10 indicators).

To study changes in well-being and inclusiveness, we divide the distribution of attainment scores for each country and for each year into five quintiles (i.e., 5): *poorest*, *second poorest*, *middle*, *second richest* and *richest*. We examine inclusiveness of well-being changes in 80 countries over two time periods by using 160 micro datasets (two datasets for each country), which include 92 Demographic Health Surveys (DHS), 61 Multiple Indicator Cluster Surveys (MICS), two China Family Panel Studies (CFPS), two Jamaica Surveys of Living Conditions (JSLC), two Mexico National Surveys of Health and Nutrition (ENSANUT) and the Peru Demographic and Family Health Survey (ENDES). For each country, the 10 indicators have been harmonized across two periods so that a consistent comparison can be performed. These datasets have been used to produce inter-temporal multidimensional poverty comparisons (Alkire et al., 2020). While conducting statistical inferences, we incorporate the sampling design of these household surveys.

Table A2 (Appendix) presents the national average attainment scores (i.e., and ) and the average attainment scores within five quintiles for 80 countries over two periods as well as their annual absolute changes (i.e., ). The national average attainment scores and the average attainment scores within quintiles vary across and within six geographic regions. The national average attainment scores in the first period range between 31.9 points in Niger and 97.9 points in Ukraine, whereas the national average attainment scores in the second period range between 38.8 points and 99 points for the same pair of countries.[[13]](#footnote-13) National average attainment scores vary the most within sub-Saharan Africa and the least within Europe and Central Asia. However, when we look at the poorest quintile, the average attainment scores in the first period vary the most within the Arab States region, between 26.7 points in Sudan and 89.2 points in Jordan. Overall, the average attainment scores within the poorest quintile vary globally in the first period between 6.9 points in Burkina Faso and 89.5 points in Ukraine.

Focusing on the changes over time, we observe statistically significant improvements in the national average () for 77 countries. For one country (Benin) we observe a statistically significant reduction in the overall average, and for two countries (Montenegro and Trinidad and Tobago) we do not observe any statistically significant change. Although countries with high overall averages in the initial period do not show large absolute improvements over time, changes across countries are certainly not monotonically related to the overall averages at the initial period and vary widely. The largest absolute annual improvements in the overall average attainment scores are observed for Mauritania and Sierra Leone – both registering around two points per annum improvements in their average attainment scores.[[14]](#footnote-14) Chad, on the other hand, has one of the lowest levels of overall average (38 points) in the initial period, and registers a low level of improvement (0.44 points per annum) in the overall average.

Looking at the changes in average attainment scores in different quintiles (i.e., for ), we observe that the average attainment scores for the poorest quintile show statistically significant improvements in 76 countries – all except Benin, Jamaica, Trinidad and Tobago, and Togo. Only Benin has a statistically significant reduction in the average attainment for the poorest quintile; the other three countries show no change. When we look at the second-poorest quintile, 75 countries have statistically significant improvements. Moving up the quintiles, the average attainment scores in the second-richest quintile for 23 countries and in the richest quintile for 29 countries are equal to 100 points, which means that no further improvements in well-being are possible in these countries’ richer quintiles due to the boundedness of attainment scores. We now examine whether the national improvements across countries have been inclusive to the poorer quintiles.

# Have changes in well-being been inclusive?

To assess the inclusiveness of well-being changes, we select a quantile-weight vector to construct the well-being measure that assigns larger weights to lower quintiles. We use a set of rank-dependent quantile weights, (5/9, 3/9, 1/9, 0, 0), that satisfies the restrictions of both Proposition 1 and Proposition 2.[[15]](#footnote-15) The quantile weights in assign a weight of 5/9 to the poorest quintile, a weight of 3/9 to the second poorest quintile, a weight of 1/9 to the middle quintile, and zero quantile weight to the two richest quintiles since the median average attainment scores within the two richest quintiles at the first period are already more than 86 points. Note that the same set of quantile weights is applicable to changes in quintile-wise average attainment scores ’s, as well as to the quantile-wise components of inclusivity premiums ’s.

Table 1 presents the *inclusive* well-being measures ( and ) which are quantile-weighted sums of quintile averages that are available in Table A2. The absolute annualized change in the well-being levels for each country across two periods is denoted by . The well-being levels vary across countries globally as well as within regions. As in the case of the average attainment scores, 77 countries register statistically significant increases in inclusive well-being, one country (Benin) reflects a statistically significant reduction, and two countries (Montenegro and Trinidad and Tobago) do not show any statistically significant changes. However, the extent of the increases in well-being levels and the increases in average attainment scores differ across countries based on whether the increases in average attainment scores are larger in the poorer quintiles, which can be analysed through assessing inclusiveness. We then decompose the overall change in well-being based on Equation (3) and report the two components – the change in the national average attainment score () and the inclusivity premium (). In the next two columns, we report the shares or contributions of and to the overall change . By construction , as in Equation (3), and so the shares of and sum to 100 percent.

Table . Change in well-being and inclusiveness

|  |  | Year | |  | Well-being | | | |  | Decomposition | | | |  | Share (%) | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Region | 1st | 2nd |  |  |  |  | |  |  | |  | |  |  |  |
| Egypt | ARS | 2008 | 2014 |  | 78.5 | 82.6 | 0.68 | \*\*\* |  | 0.32 | \*\*\* | 0.36 | \*\*\* |  | 46.9 | 53.1 |
| Iraq | ARS | 2011 | 2018 |  | 73.9 | 79.0 | 0.74 | \*\*\* |  | 0.44 | \*\*\* | 0.30 | \*\*\* |  | 59.5 | 40.5 |
| Jordan | ARS | 2012 | 2017-18 |  | 94.0 | 94.9 | 0.17 |  |  | 0.06 |  | 0.11 |  |  | 36.0 | 64.0 |
| State of Palestine | ARS | 2010 | 2014 |  | 87.1 | 89.1 | 0.50 | \*\*\* |  | 0.26 | \*\*\* | 0.24 | \*\*\* |  | 51.6 | 48.4 |
| Sudan | ARS | 2010 | 2014 |  | 37.7 | 41.6 | 0.97 | \*\*\* |  | 0.81 | \*\*\* | 0.16 | \*\*\* |  | 83.9 | 16.1 |
| Yemen | ARS | 2006 | 2013 |  | 51.4 | 58.5 | 1.01 | \*\*\* |  | 0.79 | \*\*\* | 0.22 | \*\*\* |  | 77.9 | 22.1 |
| Cambodia | EAP | 2010 | 2014 |  | 49.5 | 55.6 | 1.52 | \*\*\* |  | 1.26 | \*\*\* | 0.26 | \*\*\* |  | 82.9 | 17.1 |
| China | EAP | 2010 | 2014 |  | 71.3 | 77.2 | 1.48 | \*\*\* |  | 0.96 | \*\*\* | 0.51 | \*\*\* |  | 65.2 | 34.8 |
| Indonesia | EAP | 2012 | 2017 |  | 79.8 | 86.3 | 1.30 | \*\*\* |  | 0.70 | \*\*\* | 0.60 | \*\*\* |  | 54.1 | 45.9 |
| Lao PDR | EAP | 2011-12 | 2017 |  | 48.0 | 62.5 | 2.64 | \*\*\* |  | 1.66 | \*\*\* | 0.98 | \*\*\* |  | 62.8 | 37.2 |
| Philippines | EAP | 2013 | 2017 |  | 76.6 | 80.0 | 0.86 | \*\*\* |  | 0.57 | \*\*\* | 0.29 | \*\*\* |  | 66.3 | 33.7 |
| Thailand | EAP | 2012 | 2015-16 |  | 85.9 | 87.6 | 0.48 | \*\*\* |  | 0.27 | \*\*\* | 0.21 | \*\*\* |  | 56.2 | 43.8 |
| Timor-Leste | EAP | 2009-10 | 2016 |  | 38.6 | 52.1 | 2.07 | \*\*\* |  | 1.69 | \*\*\* | 0.38 | \*\*\* |  | 81.7 | 18.3 |
| Vietnam | EAP | 2010-11 | 2014 |  | 78.8 | 80.3 | 0.44 | \*\*\* |  | 0.29 | \*\*\* | 0.15 | \*\* |  | 66.4 | 33.6 |
| Albania | ECA | 2008-9 | 2017-18 |  | 85.3 | 89.1 | 0.42 | \*\*\* |  | 0.19 | \*\*\* | 0.23 | \*\*\* |  | 45.2 | 54.8 |
| Armenia | ECA | 2010 | 2015-16 |  | 91.3 | 92.7 | 0.25 | \*\*\* |  | 0.09 | \*\*\* | 0.16 | \*\*\* |  | 35.9 | 64.1 |
| Bosnia and Herzegovina | ECA | 2006 | 2011-12 |  | 84.8 | 89.1 | 0.77 | \*\*\* |  | 0.17 | \*\*\* | 0.61 | \*\*\* |  | 21.7 | 78.3 |
| Kazakhstan | ECA | 2010-11 | 2015 |  | 87.9 | 92.3 | 0.97 | \*\*\* |  | 0.47 | \*\*\* | 0.50 | \*\*\* |  | 48.3 | 51.7 |
| Kyrgyzstan | ECA | 2005-6 | 2014 |  | 75.3 | 82.1 | 0.80 | \*\*\* |  | 0.53 | \*\*\* | 0.27 | \*\*\* |  | 66.4 | 33.6 |
| Macedonia | ECA | 2005-6 | 2011 |  | 82.8 | 90.0 | 1.32 | \*\*\* |  | 0.59 | \*\*\* | 0.72 | \*\*\* |  | 45.0 | 55.0 |
| Moldova | ECA | 2005 | 2012 |  | 88.1 | 89.6 | 0.21 | \*\*\* |  | 0.06 | \*\*\* | 0.15 | \*\*\* |  | 28.2 | 71.8 |
| Mongolia | ECA | 2010 | 2013 |  | 66.7 | 70.8 | 1.39 | \*\*\* |  | 1.29 | \*\*\* | 0.10 |  |  | 92.9 | 7.1 |
| Montenegro | ECA | 2005-6 | 2013 |  | 88.5 | 89.4 | 0.12 |  |  | -0.01 |  | 0.14 | \* |  | -11.4 | 111.4 |
| Serbia | ECA | 2010 | 2014 |  | 91.3 | 92.0 | 0.17 | \*\* |  | 0.06 | \*\* | 0.11 | \*\* |  | 35.6 | 64.4 |
| Tajikistan | ECA | 2012 | 2017 |  | 71.0 | 75.7 | 0.93 | \*\*\* |  | 0.65 | \*\*\* | 0.28 | \*\*\* |  | 70.1 | 29.9 |
| Turkmenistan | ECA | 2006 | 2015-16 |  | 81.7 | 88.4 | 0.70 | \*\*\* |  | 0.41 | \*\*\* | 0.29 | \*\*\* |  | 58.8 | 41.2 |
| Ukraine | ECA | 2007 | 2012 |  | 94.1 | 97.1 | 0.60 | \*\*\* |  | 0.22 | \*\*\* | 0.38 | \*\*\* |  | 36.5 | 63.5 |
| Belize | LAC | 2011 | 2015-16 |  | 79.9 | 82.2 | 0.52 | \*\*\* |  | 0.23 | \*\*\* | 0.29 | \*\*\* |  | 44.0 | 56.0 |
| Bolivia | LAC | 2003 | 2008 |  | 54.2 | 65.0 | 2.17 | \*\*\* |  | 1.78 | \*\*\* | 0.39 | \*\*\* |  | 81.9 | 18.1 |
| Colombia | LAC | 2010 | 2015-16 |  | 82.5 | 84.8 | 0.41 | \*\*\* |  | 0.19 | \*\*\* | 0.22 | \*\*\* |  | 46.9 | 53.1 |
| Dominican Republic | LAC | 2007 | 2014 |  | 78.1 | 86.1 | 1.14 | \*\*\* |  | 0.72 | \*\*\* | 0.42 | \*\*\* |  | 63.4 | 36.6 |
| Guyana | LAC | 2009 | 2014 |  | 81.6 | 85.9 | 0.85 | \*\*\* |  | 0.43 | \*\*\* | 0.42 | \*\*\* |  | 50.5 | 49.5 |
| Haiti | LAC | 2012 | 2016-17 |  | 48.3 | 52.2 | 0.87 | \*\*\* |  | 0.77 | \*\*\* | 0.11 | \* |  | 87.8 | 12.2 |
| Honduras | LAC | 2005-6 | 2011-12 |  | 50.7 | 64.1 | 2.22 | \*\*\* |  | 1.49 | \*\*\* | 0.73 | \*\*\* |  | 67.2 | 32.8 |
| Jamaica | LAC | 2010 | 2014 |  | 81.1 | 82.4 | 0.31 | \*\* |  | 0.12 | \*\* | 0.19 | \* |  | 39.5 | 60.5 |
| Mexico | LAC | 2012 | 2016 |  | 82.9 | 84.1 | 0.29 | \*\*\* |  | 0.12 | \*\*\* | 0.17 | \*\*\* |  | 40.6 | 59.4 |
| Nicaragua | LAC | 2001 | 2011-12 |  | 46.8 | 68.9 | 2.11 | \*\*\* |  | 1.33 | \*\*\* | 0.78 | \*\*\* |  | 63.1 | 36.9 |
| Peru | LAC | 2012 | 2018 |  | 73.2 | 78.9 | 0.95 | \*\*\* |  | 0.55 | \*\*\* | 0.41 | \*\*\* |  | 57.4 | 42.6 |
| Suriname | LAC | 2006 | 2010 |  | 76.9 | 81.9 | 1.25 | \*\*\* |  | 0.51 | \*\*\* | 0.74 | \*\*\* |  | 40.8 | 59.2 |
| Trinidad and Tobago | LAC | 2006 | 2011 |  | 90.0 | 89.6 | -0.08 |  |  | -0.03 |  | -0.06 |  |  | 30.3 | 69.7 |
| Afghanistan | SAS | 2010-11 | 2015-16 |  | 29.3 | 35.2 | 1.18 | \*\*\* |  | 1.44 | \*\*\* | -0.27 | \*\*\* |  | 122.6 | -22.6 |
| Bangladesh | SAS | 2014 | 2019 |  | 54.9 | 64.9 | 2.00 | \*\*\* |  | 1.33 | \*\*\* | 0.66 | \*\*\* |  | 66.8 | 33.2 |
| India | SAS | 2005-6 | 2015-16 |  | 43.0 | 61.5 | 1.86 | \*\*\* |  | 1.39 | \*\*\* | 0.47 | \*\*\* |  | 74.7 | 25.3 |
| Nepal | SAS | 2011 | 2016 |  | 51.2 | 60.7 | 1.90 | \*\*\* |  | 1.23 | \*\*\* | 0.68 | \*\*\* |  | 64.4 | 35.6 |
| Pakistan | SAS | 2012-13 | 2017-18 |  | 45.9 | 49.8 | 0.77 | \*\*\* |  | 0.71 | \*\*\* | 0.06 |  |  | 92.4 | 7.6 |
| Benin | SSA | 2014 | 2017-18 |  | 36.7 | 35.5 | -0.33 | \*\*\* |  | -0.34 | \*\*\* | 0.02 |  |  | 104.8 | -4.8 |
| Burkina Faso | SSA | 2006 | 2010 |  | 15.2 | 17.8 | 0.65 | \*\*\* |  | 0.80 | \*\*\* | -0.16 | \*\*\* |  | 124.3 | -24.3 |
| Burundi | SSA | 2010 | 2016-17 |  | 31.4 | 34.7 | 0.51 | \*\*\* |  | 0.64 | \*\*\* | -0.13 | \*\*\* |  | 124.9 | -24.9 |
| Cameroon | SSA | 2011 | 2014 |  | 42.4 | 44.1 | 0.59 | \*\*\* |  | 0.51 | \*\*\* | 0.08 |  |  | 86.0 | 14.0 |
| Central African Republic | SSA | 2000 | 2010 |  | 20.2 | 26.8 | 0.67 | \*\*\* |  | 0.76 | \*\*\* | -0.09 | \*\*\* |  | 113.3 | -13.3 |
| Chad | SSA | 2010 | 2014-15 |  | 17.3 | 19.7 | 0.52 | \*\*\* |  | 0.44 | \*\*\* | 0.08 | \* |  | 83.8 | 16.2 |
| Congo, DR | SSA | 2007 | 2013-14 |  | 31.7 | 37.4 | 0.89 | \*\*\* |  | 0.62 | \*\*\* | 0.27 | \*\*\* |  | 69.8 | 30.2 |
| Côte d’Ivoire | SSA | 2011-12 | 2016 |  | 40.4 | 46.7 | 1.39 | \*\*\* |  | 1.53 | \*\*\* | -0.14 | \*\* |  | 110.3 | -10.3 |
| Eswatini | SSA | 2010 | 2014 |  | 60.4 | 67.1 | 1.68 | \*\*\* |  | 1.26 | \*\*\* | 0.42 | \*\*\* |  | 75.1 | 24.9 |
| Ethiopia | SSA | 2011 | 2016 |  | 24.4 | 28.4 | 0.81 | \*\*\* |  | 0.92 | \*\*\* | -0.11 | \*\* |  | 113.7 | -13.7 |
| Gabon | SSA | 2000 | 2012 |  | 57.7 | 69.5 | 0.99 | \*\*\* |  | 0.64 | \*\*\* | 0.35 | \*\*\* |  | 64.3 | 35.7 |
| Gambia | SSA | 2005-6 | 2013 |  | 32.1 | 43.5 | 1.51 | \*\*\* |  | 1.15 | \*\*\* | 0.36 | \*\*\* |  | 76.2 | 23.8 |
| Ghana | SSA | 2011 | 2014 |  | 56.6 | 61.9 | 1.75 | \*\*\* |  | 0.90 | \*\*\* | 0.84 | \*\*\* |  | 51.7 | 48.3 |
| Guinea | SSA | 2012 | 2018 |  | 28.8 | 34.0 | 0.87 | \*\*\* |  | 0.83 | \*\*\* | 0.04 |  |  | 95.5 | 4.5 |
| Kenya | SSA | 2008-9 | 2014 |  | 49.0 | 54.6 | 1.02 | \*\*\* |  | 0.79 | \*\*\* | 0.23 | \*\*\* |  | 77.8 | 22.2 |
| Lesotho | SSA | 2009 | 2014 |  | 51.1 | 57.7 | 1.31 | \*\*\* |  | 1.20 | \*\*\* | 0.11 | \*\* |  | 91.3 | 8.7 |
| Liberia | SSA | 2007 | 2013 |  | 30.7 | 41.0 | 1.72 | \*\*\* |  | 1.73 | \*\*\* | -0.01 |  |  | 100.4 | -0.4 |
| Madagascar | SSA | 2008-9 | 2018 |  | 31.9 | 35.5 | 0.38 | \*\*\* |  | 0.50 | \*\*\* | -0.12 | \*\*\* |  | 131.4 | -31.4 |
| Malawi | SSA | 2010 | 2015-16 |  | 42.1 | 49.5 | 1.35 | \*\*\* |  | 1.19 | \*\*\* | 0.16 | \*\*\* |  | 88.0 | 12.0 |
| Mali | SSA | 2006 | 2015 |  | 27.1 | 32.0 | 0.54 | \*\*\* |  | 0.74 | \*\*\* | -0.20 | \*\*\* |  | 137.7 | -37.7 |
| Mauritania | SSA | 2011 | 2015 |  | 34.5 | 44.6 | 2.52 | \*\*\* |  | 2.04 | \*\*\* | 0.48 | \*\*\* |  | 80.9 | 19.1 |
| Mozambique | SSA | 2003 | 2011 |  | 25.4 | 33.3 | 0.99 | \*\*\* |  | 1.21 | \*\*\* | -0.21 | \*\*\* |  | 121.4 | -21.4 |
| Namibia | SSA | 2006-7 | 2013 |  | 51.6 | 57.1 | 0.85 | \*\*\* |  | 0.63 | \*\*\* | 0.21 | \*\*\* |  | 74.9 | 25.1 |
| Niger | SSA | 2006 | 2012 |  | 13.6 | 19.7 | 1.02 | \*\*\* |  | 1.15 | \*\*\* | -0.13 | \*\*\* |  | 112.8 | -12.8 |
| Nigeria | SSA | 2013 | 2018 |  | 38.8 | 42.1 | 0.67 | \*\*\* |  | 0.53 | \*\*\* | 0.13 | \*\*\* |  | 79.8 | 20.2 |
| Republic of Congo | SSA | 2005 | 2014-15 |  | 47.5 | 61.7 | 1.49 | \*\*\* |  | 1.36 | \*\*\* | 0.14 | \*\*\* |  | 91.0 | 9.0 |
| Rwanda | SSA | 2010 | 2014-15 |  | 40.7 | 48.4 | 1.72 | \*\*\* |  | 1.56 | \*\*\* | 0.16 | \*\*\* |  | 90.6 | 9.4 |
| São Tomé and Príncipe | SSA | 2008-9 | 2014 |  | 54.7 | 66.1 | 2.08 | \*\*\* |  | 1.62 | \*\*\* | 0.46 | \*\*\* |  | 77.9 | 22.1 |
| Senegal | SSA | 2005 | 2017 |  | 30.2 | 41.3 | 0.93 | \*\*\* |  | 0.63 | \*\*\* | 0.29 | \*\*\* |  | 68.2 | 31.8 |
| Sierra Leone | SSA | 2013 | 2017 |  | 33.8 | 42.2 | 2.09 | \*\*\* |  | 2.12 | \*\*\* | -0.03 |  |  | 101.4 | -1.4 |
| Tanzania | SSA | 2010 | 2015-16 |  | 41.4 | 44.8 | 0.62 | \*\*\* |  | 0.77 | \*\*\* | -0.15 | \*\*\* |  | 123.8 | -23.8 |
| Togo | SSA | 2010 | 2013-14 |  | 38.0 | 39.1 | 0.30 | \*\* |  | 0.32 | \*\*\* | -0.01 |  |  | 104.3 | -4.3 |
| Uganda | SSA | 2011 | 2016 |  | 40.1 | 45.5 | 1.07 | \*\*\* |  | 1.09 | \*\*\* | -0.02 |  |  | 101.7 | -1.7 |
| Zambia | SSA | 2007 | 2013-14 |  | 38.6 | 45.9 | 1.13 | \*\*\* |  | 0.87 | \*\*\* | 0.26 | \*\*\* |  | 76.8 | 23.2 |
| Zimbabwe | SSA | 2010-11 | 2015 |  | 56.4 | 59.1 | 0.61 | \*\*\* |  | 0.49 | \*\*\* | 0.11 | \*\*\* |  | 81.1 | 18.9 |
| Source: Authors’ computations.  Statistical significance: \*\*\*: , \*\*: , \*: .  Notes: is the well-being in period 1; is the well-being in period 2; Δ is the annual absolute change and ΔB is the annual bound-adjusted change. The share of and can be more than 100 percent.  Region abbreviations: ARS: Arab States; EAP: East Asia and the Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; SAS: South Asia; SSA: Sub-Saharan Africa. | | | | | | | | | | | | | | | | | |

We observe that inclusivity premiums are statistically significantly negative for 11 countries: one from South Asia (Afghanistan) and 10 from sub-Saharan Africa (Burkina Faso, Burundi, Central African Republic, Côte d’Ivoire, Ethiopia, Madagascar, Mali, Mozambique, Niger and Tanzania). We further observe inclusivity premiums to be not statically significantly different from zero for nine countries: one from Latin America and Caribbean (Trinidad and Tobago), one from South Asia (Pakistan), and seven from sub-Saharan Africa (Benin, Cameroon, Guinea, Liberia, Sierra Leone, Togo and Uganda). Thus, for a quarter of the countries in our sample (20 out of 80), we do not observe a positive inclusivity premium. Surprisingly, except for Benin and Trinidad and Tobago, 18 of these 20 countries register statistically significant improvements in average attainment scores over the respective study periods. Moreover, the majority of these 20 countries are from sub-Saharan Africa. More precisely, nearly half of all sub-Saharan African countries (17 out of 35) do not produce positive inclusivity premiums. Most countries though do reflect positive inclusivity premiums, with wide variation. Out of the 60 countries that show statistically significant positive premiums, 25 countries register premiums that are larger than 0 points but no larger than 0.25 points, 24 countries register premiums that are larger than 0.25 points but no larger than 0.5 points, 8 countries register premiums that are larger than 0.5 points but no larger than 0.75 points, and only three countries (Ghana, Lao PDR and Nicaragua) register premiums of over 0.75 points per year. It appears that 20 countries register annualized improvements in average attainment scores of 1.2 points or above and 20 countries register annualized inclusivity premiums of 0.39 and above, but only half of the countries (10) register both milestones.

To visually understand the relationship between the change in the average attainment and the inclusivity premium across countries, Figure 1 presents the relationship through a scatterplot. The horizontal axis shows the per annum change in average attainment between two periods, whereas the vertical axis shows the inclusivity premium between two periods. Each point on the scatterplot provides an interesting interpretation of the decomposition. The total change in well-being of a particular country is simply the sum of the two coordinates. For example, for Honduras (HND), the annual change in the average attainment is 1.49 points and the inclusivity premium per annum is 0.73 points. Therefore, the annual change in inclusive well-being for Honduras is 2.22 points (1.49 + 0.73). The graph shows a lack of a particular relationship between inclusivity premiums and average attainment scores across countries as inclusivity premiums vary widely for similar changes in average attainment scores.

Figure . Change in average attainment and inclusivity premium

|  |
| --- |
| Chart, diagram  Description automatically generated |
| Source: Authors’ computations.  Notes: The solid black population weighted trend line corresponds to 80 countries. The solid grey population unweighted trend line corresponds to 80 countries. The dashed grey population unweighted trend line corresponds to 79 countries, excluding Lao PDR.  Country abbreviations: AFG: Afghanistan; ALB: Albania; ARM: Armenia; BDI: Burundi; BEN: Benin; BFA: Burkina Faso; BGD: Bangladesh; BIH: Bosnia and Herzegovina; BLZ: Belize; BOL: Bolivia; CAF: Central African Republic: CHN: China; CIV: Côte d’Ivoire; CMR: Cameroon; COD: Congo, DR; COG: Republic of Congo; COL: Colombia; DOM: Dominican Republic; EGY: Egypt; ETH: Ethiopia; GAB: Gabon; GHA: Ghana; GIN: Guinea; GMB: Gambia; GUY: Guyana; HND: Honduras; HTI: Haiti; IDN: Indonesia; IND: India; IRQ: Iraq; JAM: Jamaica; JOR: Jordan; KAZ: Kazakhstan; KEN: Kenya; KGZ: Kyrgyzstan; KHM: Cambodia; LAO: Lao PDR; LBR: Liberia; LSO: Lesotho; MDA: Moldova; MDG: Madagascar; MEX: Mexico; MKD: Macedonia; MLI: Mali; MNE: Montenegro; MNG: Mongolia; MOZ: Mozambique; MRT: Mauritania; MWI: Malawi; NAM: Namibia; NER: Niger; NGA: Nigeria; NIC: Nicaragua; NPL: Nepal; PAK: Pakistan; PER: Peru; PHL: Philippines; PSE: State of Palestine; RWA: Rwanda; SDN: Sudan; SEN: Senegal; SLE: Sierra Leone; SRB: Serbia; STP: São Tomé and Príncipe; SUR: Suriname; SWZ: Eswatini; TCD: Chad; TGO: Togo; THA: Thailand; TJK: Tajikistan; TKM: Turkmenistan; TLS: Timor-Leste; TTO: Trinidad and Tobago; TZA: Tanzania; UGA: Uganda; UKR: Ukraine; VNM: Vietnam; YEM: Yemen; ZMB: Zambia; ZWE: Zimbabwe. |

Table 1 also reports the contribution of each component to the total change in inclusive well-being. Interesting insights may be drawn by looking at these figures directly while comparing progress across countries. Comparing the two South Asian countries, India and Nepal, both have a similar level of inclusive well-being in 2016 (61.5 points for India and 60.7 points for Nepal) as well as similar changes in average attainment scores over their respective study periods (1.90 points per annum for Nepal and 1.86 points per annum for India). Decomposing their changes in well-being shows that India’s change in average attainment (1.39 points per annum) is statistically significantly higher than that of Nepal (1.23 points per annum), whereas Nepal’s inclusivity premium (0.68 points per annum) is statistically significantly higher than India’s (0.47 points per annum). The share of the inclusivity premium to the inclusive well-being change for Nepal is 35.6 percent, which is around 10 percentage points higher than the contribution of the inclusivity premium to the well-being change for India (25.3 percent). Therefore, Nepal’s progress can be claimed to have been accompanied by providing much larger priority to poorer quintiles.

# Comparison of inclusivity premium to other well-known measures

We now elaborate how our proposed framework compares with two measures: the shared prosperity premium (SPP) produced by the World Bank and the global MPI produced by OPHI and UNDP. We first explore how the SPP, which is the difference between the (relative) growth of average income among the bottom 40 percent of the population of a country and the (relative) growth of the overall average income, compares with the inclusivity premium across countries. The SPP, like the inclusivity premium, is positive whenever the average income growth among the poorest 40 percent of the population is larger than the overall average income growth, whereas the SPP measure is negative whenever the average income growth among the poorest 40 percent is slower than the overall average income growth.

Figure . Shared prosperity premiums and inclusivity premiums across 25 countries

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| --- |
| Chart, scatter chart  Description automatically generated |
| Source: Authors’ computations for inclusivity premiums. SPP figures accessed from [https://www.worldbank.org/en/topic/poverty/brief/global-database-of-shared-prosperity in Dec. 2021](https://www.worldbank.org/en/topic/poverty/brief/global-database-of-shared-prosperity%20in%20Dec.%202021).  Notes: Both the solid black population weighted trend line and the solid grey population unweighted trend line correspond to 25 countries  Countries for SPP: Albania (ALB, 2014–17), Armenia (ARM, 2013–18), China (CHN, 2013–16), Colombia (COL, 2014–19), Dominican Republic (DOM, 2011–16), Egypt (EGY, 2012–17), Ghana (GHA, 2012–16), Indonesia (IDN, 2015–19), Kazakhstan (KAZ, 2013–18), Lao PDR (LAO, 2012–18), Malawi (MWI, 2010–16), Mongolia (MNG, 2011–18), Montenegro (MNE, 2012–16), Pakistan (PAK, 2013–18), Peru (PER, 2014–19), Philippines (PHL, 2015–18), Rwanda (RWA, 2013–16), Serbia (SRB, 2013–17), Sierra Leone (SLE, 2011–18), State of Palestine (PSE, 2011–16), Tanzania (TZA, 2011–18), Thailand (THA, 2015–19), Uganda (UGA, 2012–16), Vietnam (VNM, 2014–18), Zimbabwe (ZWE, 2011–17). |

We are able to secure SPP data from the World Bank’s global database on shared prosperity for only 31 of the 80 countries in our sample.[[16]](#footnote-16) Of these 31 countries, for 25 countries the differences between the first and last periods of the surveys for computing SPPs and those for the surveys for computing inclusivity premiums were three years or less. Figure 2 presents the relationship between SPPs and inclusivity premiums across these 25 countries using a simple scatterplot. Although there are instances where some countries perform relatively similarly by both measures, overall we observe an inverted-U shaped relationship between these two measures for the 25 countries. Higher SPPs are therefore not necessarily associated with higher inclusivity premiums. Countries such as Pakistan, Sierra Leone, Tanzania and Uganda show unsatisfactory performance by both measures, whereas countries such as China and Indonesia perform moderately according to both measures. There are several instances, however, where a group of countries perform impressively by one measure but not by the other measure. For instance, Ghana and Lao PDR perform impressively in terms of inclusivity premiums but their SPPs are negative, whereas Malawi and Philippines register very high SPPs but their inclusivity premiums are less impressive.

We next compare the inclusivity premiums with the changes in the well-known global MPI values. Given that our inclusive well-being measure uses the same set of indicators and parameters as the global MPI, it is crucial to examine whether our inclusive well-being framework provides any additional insight over the changes in the MPIs. Figure 3 presents the relationship between inclusivity premiums and absolute changes in the MPIs across 80 countries. As with the SPP, the relationship in Figure 3 is also inverted-U shaped.[[17]](#footnote-17) Countries such as Burkina Faso, Mali, Mozambique and Niger register statistically significant reductions in their MPIs, but they all register statistically significantly negative inclusivity premiums. In contrast, countries such as Bangladesh, Nepal and Honduras register statistically signficant reductions in their MPI as well as statistically significantly positive SPPs. There are also instances, such as Colombia and Thailand, where the absolute reductions in their MPIs are small but their SPPs are much larger.

Figure . Inclusivity premiums and absolute changes in the MPIs across countries

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| --- |
| Diagram  Description automatically generated |
| Source: Authors’ computations.  Notes: Figures for inclusivity premiums and absolute changes in the MPIs are reported in Table A3. The solid black line corresponds to the population weighted trend line for 80 countries. The solid grey line corresponds to the population unweighted trend line for 80 countries.  Country abbreviations: AFG: Afghanistan; ALB: Albania; ARM: Armenia; BDI: Burundi; BEN: Benin; BFA: Burkina Faso; BGD: Bangladesh; BIH: Bosnia and Herzegovina; BLZ: Belize; BOL: Bolivia; CAF: Central African Republic: CHN: China; CIV: Côte d’Ivoire; CMR: Cameroon; COD: Congo, DR; COG: Republic of Congo; COL: Colombia; DOM: Dominican Republic; EGY: Egypt; ETH: Ethiopia; GAB: Gabon; GHA: Ghana; GIN: Guinea; GMB: Gambia; GUY: Guyana; HND: Honduras; HTI: Haiti; IDN: Indonesia; IND: India; IRQ: Iraq; JAM: Jamaica; JOR: Jordan; KAZ: Kazakhstan; KEN: Kenya; KGZ: Kyrgyzstan; KHM: Cambodia; LAO: Lao PDR; LBR: Liberia; LSO: Lesotho; MDA: Moldova; MDG: Madagascar; MEX: Mexico; MKD: Macedonia; MLI: Mali; MNE: Montenegro; MNG: Mongolia; MOZ: Mozambique; MRT: Mauritania; MWI: Malawi; NAM: Namibia; NER: Niger; NGA: Nigeria; NIC: Nicaragua; NPL: Nepal; PAK: Pakistan; PER: Peru; PHL: Philippines; PSE: State of Palestine; RWA: Rwanda; SDN: Sudan; SEN: Senegal; SLE: Sierra Leone; SRB: Serbia; STP: São Tomé and Príncipe; SUR: Suriname; SWZ: Eswatini; TCD: Chad; TGO: Togo; THA: Thailand; TJK: Tajikistan; TKM: Turkmenistan; TLS: Timor-Leste; TTO: Trinidad and Tobago; TZA: Tanzania; UGA: Uganda; UKR: Ukraine; VNM: Vietnam; YEM: Yemen; ZMB: Zambia; ZWE: Zimbabwe. |

To form a deeper understanding of their relationship, we examine two countries – Tanzania and Zambia. Both countries’ MPIs have similar levels in their respective initial periods (0.342 in 2010 for Tanzania and 0.349 in 2007 for Zambia) as well as similar levels of annual absolute reductions (-0.011 between 2010 and 2016 for Tanzania and -0.012 between 2007 and 2014 for Zambia). Tanzania’s MPI headcount ratio is also similar to Zambia’s in the initial period and they both show similar annual reductions.

Figure . Average attainment scores by quintile across two periods in Tanzania and Zambia

|  |  |
| --- | --- |
| Chart, histogram  Description automatically generated  Panel A: Tanzania | Chart, histogram  Description automatically generated  Panel B: Zambia |
| Source: Authors’ computations based on Table A2 and Table A3.  Notes: The solid and dashed vertical lines correspond to the MPI headcount ratios for the first year and the second year, respectively. | |

However, when we look at the inclusivity premiums, Tanzania reflects a statistically significantly negative inclusivity premium of -0.15, whereas Zambia reflects a statistically significantly positive inclusivity premium of 0.26. Figure 4 presents the quintile-wise changes in average attainment scores for both countries in two panels using bar diagrams. The height of the lighter-shaded bar denotes the average attainment within each quintile for the first period, whereas the height of the darker-shaded bar denotes the average attainment within each quintile for the second period. The difference between the darker-shaded bar and the lighter-shaded bar denotes the improvement in average attainment within each quintile. Note that an attainment score is the complement of a deprivation score by our definition, and therefore the magnitude of absolute improvement in the average attainment score within a quintile is equivalent to the magnitude of the corresponding absolute reduction in the average deprivation score within that quintile.

Hence, the MPIs and corresponding headcount ratios have improved by similar magnitudes for both Tanzania and Zambia, but we clearly observe a key difference in inclusivity between the two countries. For Tanzania, improvements in average attainment scores in poorer quintiles have been slower than the improvements in richer quintiles, but for Zambia, improvements have been faster for poorer quintiles. Therefore, Zambia’s improvement in well-being has been inclusive, but Tanzania’s improvement in well-being has not. Clearly, our framework adds valuable information over and above the global MPI.

# Robustness of inclusive well-being changes and inclusivity premiums

So far, we have chosen a particular quantile-weight vector for assessing well-being changes and inclusivity premiums. Corresponding to , let us denote the change in well-being and the inclusivity premium between and by and . In other words, both are presented as weighted sums of ’s and ’s. However, any other quantile-weight vector could be an admissible alternative for assessing well-being and inclusivity premiums, where is the set of alternative quantile-weight vectors. Under different circumstances, could either be a subset of or be the entire set itself (i.e., ).

Without loss of generality, suppose the overall well-being change at is non-negative, , and/or the inclusivity premium is positive, . For both these comparisons to be robust with respect to alternative quantile-weight vectors , we need to show that and for all . There are an infinite number of alternative quantile-weight vectors in , but we may invoke various results from Seth and McGillivray (2018) to obtain a finite number of tractable conditions. We can illustrate the concept using an example with or whenever the entire distribution is divided across terciles.

Figure . Set of alternative quantile-weight vectors for checking robustness

|  |  |
| --- | --- |
| Panel A | Panel B |
| Source: Adapted from Figure 2b of Seth and McGillivray (2018). | |

In each panel of Figure 5, all quantile-weight vectors with non-negative quantile weights that sum up to one in three dimensions are summarized by a simplex with three quantile-weight vectors (0, 0, 1), (0, 1, 0) and (0, 0, 1) as its three vertices. The quantile-weight vectors (0, 0, 1), (0, 1, 0) and (1, 0, 0) assign the entire quantile weight respectively to the change in the richest tercile, to the change in the middle tercile, and to the change in the poorest tercile. Any quantile-weight vector within the simplex is a convex combination of these three vertices.

Proposition 1 requires that for all weights in . Panel A of Figure 5 presents the most extreme case when , where all quantile weights are allowed to vary between 0 and 1. In this case, the set of all alternative quantile-weight vectors are summarized by the shaded region within the simplex, where is a component in the set. To check the robustness of well-being changes evaluated at , we need to compare the well-being changes at all quantile-weight vectors within the shaded region. Following Seth and McGillivray (2018, Proposition 1), the requirement boils down to only comparing well-being changes at three vertices of the shaded region: at (1, 0, 0), (1/2, 1/2, 0) and (1/3, 1/3, 1/3). If the well-being changes are robust at these three quantile-weight vectors, then following Foster, McGillivray, and Seth (2012) it can be easily shown that they are robust for all quantile weights in the shaded region. Since is not a feasible alternative by Proposition 2, cannot be the set of admissible alternatives for checking robustness for inclusivity premiums.

Panel B of Figure 5 presents another case where is such that the two poorest terciles are assigned strictly positive quantile weight, but no quantile weight is assigned to the richest tercile (i.e., ). Then, following Seth and McGillivray (2018), the set of alternative quantile-weight vectors, , is the linear segment between and including vertices (1/2, 1/2, 0) and (1, 0, 0). To test robustness with respect to then requires checking the robustness of well-being changes as well as the robustness of inclusivity premiums only at (1/2, 1/2, 0) and (1, 0, 0).

Formally, depending on particular cases, different tractable robustness criteria may be determined drawing from Seth and McGillivray (2018). However, we can provide a formal presentation of the case when . We introduce two additional vector notations: denotes a -dimensional vector of ones and is a -dimensonal vector of zeros for any . In order to ensure robustness, in this case, one is required to show that for the following quantile-weight vectors: () for all and ().

Let us link to the case with . For , () = (1, 0, 0); for , () = (1/2, 1/2, 0); and for , () = (1/3, 1/3, 1/3). Let us provide some intuition behind what it means for checking robustness at the quantile-weight vectors. First, consider the case for , that is, (), where is the change in the poorest quantile. Next, consider the other extreme of , that is, (), where, is the average of the change in the poorest quantiles. It is easy to check that for any that () corresponds to the average of the changes in the bottom quantiles, that is, . Finally, consider (), which assigns equal quantile weights to all quantiles so that and . Thus, the robustness test corresponds to checking the average of changes for every bottom quantiles, that is, for all .[[18]](#footnote-18)

## Robustness of the empirical analysis

For our empirical analysis, we have used (5/9, 3/9, 1/9, 0, 0). With , we always provide zero quantile weights to the two richest quintiles and so the set of alternative quantile-weight vectors for checking robustness is . Then, following Seth and McGillivray (2018), we are required to compare well-being changes and inclusivity premiums at the following three quantile-weight vectors: = (1, 0, 0, 0, 0), = (1/2, 1/2, 0, 0, 0) and = (1/3, 1/3, 1/3, 0, 0). Note that requires comparing the changes and the inclusivity premium only for the poorest quintile, whereas and require comparing the average changes and inclusivity premiums for the bottom two (poorest and second poorest) and the bottom three (poorest, second poorest and middle) quintiles, respectively.[[19]](#footnote-19)

We report the well-being levels and inclusivity premiums for , and in Table A4. The final two columns report whether the changes in inclusive well-being and the inclusivity premiums are robust or not for all 80 countries. Our robustness tests are more conservative than our theoretical framework. We refer to an increase in well-being to be robust if we observe statistically significant increases for all three quantile-weight vectors, , and . Similarly, we refer to a reduction in well-being to be robust whenever we observe statistically significant reductions in well-being levels for all three quantile-weight vectors. Out of the 80 countries, we observe the changes in well-being to be robust for 76 countries, including Benin. The four countries for which the changes are not robust are Jamaica, Montenegro, Togo, and Trinidad and Tobago. Of these four non-robust changes, the changes for Montenegro and Trinidad and Tobago are not statistically significant even at . The changes for Jamaica and Togo, on the other hand, are statistically significant but do not pass the robustness test.

We next analyse the robustness of the inclusivity premiums that are outlined in the final column of Table A4. We test whether the inclusivity premiums have the same sign as that for and are statistically significantly different from zero at the three quantile-weight vectors: , and . Unlike the changes in well-being, only around two-thirds of all inclusivity premiums (for 54 countries) are robust with respect to all alternative quantile-weight vectors in , while the other 26 countries do not pass the robustness test. Of the 60 countries that register positive inclusivity premiums, 47 are robust with respect to all alternative quantile-weight vectors in and 13 are not robust. Similarly, of the 11 countries that register negative inclusivity premiums, seven are robust and four are not robust. Table A4 highlights the countries in grey that fail to satisfy the robustness test for inclusivity premium. Of these 26 countries, nine in total are from the Arab States (1), East Asia and the Pacific (1), Europe and Central Asia (2), Latin America and Caribbean (3), and South Asia (2) regions, whereas 17 are from sub-Saharan Africa. In other words, for nearly half of the sub-Saharan African countries, we do not observe robust inclusivity premiums.

Some insights can be drawn by examining how some countries fail the robustness test. For example, Sudan and Vietnam have very different levels of well-being. Both countries register statistically significantly positive inclusivity premiums for and , but both fail to show statistically significant inclusivity premium for . Although the poorest quintiles in both countries show improvements, their improvements are not faster than the overall improvements.[[20]](#footnote-20)

# Conclusions

In this paper, we first presented a quantile-based framework for studying whether the overall progress in well-being is being inclusive to poorer people for indicators of well-being that are non-monetary in nature and are naturally bounded. To ensure consistent assessment of well-being changes as well as inclusiveness across attainment and deprivation scores, we examined absolute changes in well-being, where the well-being measure is a quantile-weighted sum of quantile averages. We characterized the restrictions on quantile weights based on certain key axioms and through additive decomposition showed that the overall change in well-being can be broken down into two components: change in the average attainment; and inclusivity premium that captures the extent to which the overall change in well-being is shared by poorer people. We further proposed a methodology for checking the robustness of well-being changes and inclusivity premiums with respect to alternative sets of quantile weights.

For the empirical assessment of well-being, we drew upon the well-known counting framework that has been widely adopted for multidimensional poverty measurement. The measure of well-being we used is the complement of the global MPI. We used the complement of the deprivation score, which captures the breadth of deprivations in the multidimensional poverty measurement framework, namely the attainment score. Out of the 80 developing countries in our analysis, we observed statistically significant increase in well-being for 77 countries. Out of all the statistically significant improvements, we observed robust well-being increases for 75 countries. For one country, we observed robust well-being reduction. However, our analysis of inclusivity premium does not reflect such a rosy picture. Only three-quarters of all countries register a positive inclusivity premium. In other words, progress in average attainment has been inclusive for poorer people in only 60 countries. For the other 20 countries, the inclusivity premiums are either negative or not statistically significantly different from zero. Moreover, out of the 60 countries with statistically significantly positive inclusivity premiums, only 47 are robust to alternative quantile-weight vectors. Similarly, statistically significantly negative inclusivity premiums are robust in seven countries.

Geographical decomposition shows wide variation in inclusiveness across regions. Out of the 80 countries in our analysis, 35 countries are from the sub-Saharan African region and the other 45 countries are distributed across the Arab States, East Asia and the Pacific, Europe and Central Asia, Latin America and Caribbean and South Asian regions. Out of the 60 countries that have statistically significantly positive inclusivity premiums, only 18 are from sub-Saharan Africa and 42 are from the other five regions. Out of the 47 such robust comparisons, only 11 are from the sub-Saharan African region. While 80 percent of all countries (36 out of 45) from other five geographical regions show robust positive inclusiveness, fewer than one-third of all countries in sub-Saharan Africa show robust positive inclusiveness. All seven countries that register robust statistically significantly negative inclusivity premiums are from the sub-Saharan African region: Burkina Faso, Burundi, Madagascar, Mali, Mozambique, Niger and Tanzania.

We linked our approach to assessing the inclusiveness of well-being to that of the World Bank’s monetary shared prosperity analysis as well as the global MPI. We observed a non-linear relationship with both these measures through cross-country analysis – meaning neither higher monetary shared prosperity nor faster absolute reduction in multidimensional poverty at the national level is necessarily associated with inclusive improvement in well-being over time. We presented an illustration of two countries showing how an improvement in well-being may remain non-inclusive to poorer people in society despite successful poverty reduction. Our approach thus contributes by providing additional insights to the existing effective multidimensional poverty measurement framework.

Our empirical application in this paper analysed inclusiveness of well-being changes using five quintiles across different countries, but the framework may have wider applications, and could be used to study and analyse inclusiveness of well-being changes within different regions of a country: the data for such subnational analyses are present in the global MPI database and may be of considerable interest. Finally, we used a multidimensional counting framework as a measure of well-being as there is a strong justification that well-being and poverty are both multidimensional. However, our approach is equally applicable to any bounded indicator of well-being that may have attainment and deprivation representations.

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# Appendix

## Proof of Proposition 1

For some , and , we know that . First, we prove the *sufficiency* part, showing that satisfies weak monotonicity, translation homogeneity and weak priority if for all , and for all pairs . Provided , we clearly have whenever for all , and so satisfies *weak monotonicity*. Provided , it can be seen that whenever for all , and so satisfies *translation homogeneity*. Finally, for some and and for some , suppose , for all , for all . Then for some , . Provided for all , we certainly have and hence . Therefore, satisfies *weak priority*.

Next, we prove the *necessity* part. First, suppose that satisfies translation homogeneity, which requires whenever for all . Thus, inserting the values in the equation we obtain , which implies . Second, suppose that satisfies weak monotonicity, which requires whenever for all . We need to show that for all . Without loss of generality, for an arbitrary , suppose and for all . Then, . Now, implies that , which contradicts the monotonicity property. Given that is necessary for an arbitrary , it is necessary that for all . Finally, for some and and for some arbitrary pair , suppose , for all and for all . Then, for some , . Now, implies , violating the weak priority property. So, is necessary for and since this condition holds for any arbitrary pair , it holds for all pairs , which completes our proof for the necessity part.

## Proof of Proposition 2

From Equation (3), we obtain the inclusivity premium as . For the ease of presentation in the proof, we supress the inputs of the functions. Then, using summation by parts, we may rewrite the right-hand side of the equation as:[[21]](#footnote-21)

|  |  |  |
| --- | --- | --- |
|  |  | (4) |

By definition, and so . Thus, the first term in Equation (4) equals to zero. Next, suppose for all and for some . Then, for all and . Finally, whenever for all , then for all . Hence, .

We next prove the necessity part by showing that whenever for some and whenever . For the first part, suppose and suppose further without loss of generality that and . Then, . Given that , then or . Now, suppose . Clearly, or . Hence, . For the second part, by definition, and so , which completes our proof.

## Supplementary tables

Table A. Dimensions, indicators, relevant SDG areas and weights for the global MPI

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dimensions of poverty** | **Indicator** | **Deprived if...** | **SDG  area** | **Weight** |
| Health | Nutrition | Any person under 70 years of age for whom there is nutritional information is **undernourished**.1 | SDG 2 | 1/6 |
| Child mortality | A child **under 18** has **died** in the household in the five-year period preceding the survey.2 | SDG 3 | 1/6 |
| Education | Years of schooling | **No** eligible household member has completed **six years** of **schooling**.3 | SDG 4 | 1/6 |
| School attendance | Any school-aged child is **not attending** school **up to** the age at which he/she would complete **class 8**.4 | SDG 4 | 1/6 |
| Living  standards | Cooking fuel | A household cooks using **solid fuel**, such as dung, agricultural crop, shrubs, wood, charcoal or coal.5 | SDG 7 | 1/18 |
| Sanitation | The household has **unimproved** or **no** sanitation **facility** or it is improved but **shared** with other households.6 | SDG 6 | 1/18 |
| Drinking water | The household’s source of **drinking water** is **not safe** or safe drinking water is a **30-minute** or **longer walk** from home, roundtrip.7 | SDG 6 | 1/18 |
| Electricity | The household has **no electricity**.8 | SDG 7 | 1/18 |
| Housing | The household has **inadequate** housing materials in **any** of the three components: **floor**, **roof** or **walls**.9 | SDG 11 | 1/18 |
| Assets | The household does **not own more than one** of these **assets**: radio, TV, telephone, computer, animal cart, bicycle, motorbike or refrigerator, and does not own a car or truck. | SDG 1 | 1/18 |
| Source: Alkire, Kanagaratnam, and Suppa (2020).  Notes: The global MPI is related to the following SDGs: No Poverty (SDG 1), Zero Hunger (SDG 2), Good Health and Well-being (SDG 3), Quality Education (SDG 4), Clean Water and Sanitation (SDG 6), Affordable and Clean Energy (SDG 7), and Sustainable Cities and Communities (SDG 11). | | | | |
| 1 Children under 5 years (60 months and younger) are considered undernourished if their z-score of either height-for-age (stunting) or weight-for-age (underweight) is below minus two standard deviations from the median of the reference population. Children 5–19 years (61–228 months) are identified as deprived if their age-specific BMI cutoff is below minus two standard deviations. Adults 19 to 70 years (229–840 months) are considered undernourished if their Body Mass Index (BMI) is below 18.5 m/kg². | | | | |
| 2 The child mortality indicator of the global MPI is based on birth history data provided by mothers aged 15 to 49. In most surveys, men have provided information on child mortality as well, but this lacks the date of birth and death of the child. Hence, the indicator is constructed solely from mothers. However, if the data from the mother are missing, and if the male in the household reported no child mortality, then we identify no child mortality in the household. | | | | |
| 3 If all individuals in the household are in an age group where they should have formally completed six or more years of schooling, but none have this achievement, then the household is deprived. However, if any individuals aged 10 years and older reported six years or more of schooling, the household is not deprived. | | | | |
| 4 Data sources for the age children start compulsory primary school are DHS or MICS survey reports, and http://data.uis.unesco.org | | | | |
| 5 If the survey report uses other definitions of solid fuel, we follow the survey report. | | | | |
| 6 A household is considered to have access to improved sanitation if it has some type of flush toilet or latrine, or ventilated improved pit or composting toilet, provided that they are not shared. If the survey report uses other definitions of adequate sanitation, we follow the survey report | | | | |
| 7A household has access to clean drinking water if the water source is any of the following types: piped water, public tap, borehole or pump, protected well, protected spring, or rainwater, and it is within a 30-minute walk, round trip. If the survey report uses other definitions of clean or safe drinking water, we follow the survey report. | | | | |
| 8A number of countries do not collect data on electricity because of 100 percent coverage. In such cases, we identify all households in the country as non-deprived in electricity. | | | | |
| 9 A household is considered deprived if its floor is made of natural materials or if the dwelling has no roof or walls, or if either the roof or walls are constructed using natural or rudimentary materials. The definition of natural and rudimentary materials follows the classification used in country-specific DHS or MICS questionnaires. | | | | |

Table A. Quintile-wise average attainment scores and national average attainment scores across countries

|  |  | Survey | |  | Year | |  | Overall | | | |  | Poorest Quintile | | | |  | 2nd Poorest Quintile | | | |  | Middle Quintile | | | |  | 2nd Richest Quintile | | | |  | Richest Quintile | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country (ISO) | Region | 1st | 2nd |  | 1st | 2nd |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |
| Egypt (EGY) | ARS | DHS | DHS |  | 2008 | 2014 |  | 90.8 | 92.7 | 0.32 | \*\*\* |  | 70.7 | 76.0 | 0.88 | \*\*\* |  | 84.9 | 87.9 | 0.50 | \*\*\* |  | 98.2 | 99.5 | 0.22 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Iraq (IRQ) | ARS | MICS | MICS |  | 2011 | 2018 |  | 87.9 | 91.0 | 0.44 | \*\*\* |  | 64.9 | 71.6 | 0.96 | \*\*\* |  | 82.8 | 84.9 | 0.29 | \*\*\* |  | 92.0 | 98.5 | 0.94 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Jordan (JOR) | ARS | DHS | DHS |  | 2012 | 2017-18 |  | 97.8 | 98.2 | 0.06 | \*\*\* |  | 89.2 | 90.9 | 0.30 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| State of Palestine (PSE) | ARS | MICS | MICS |  | 2010 | 2014 |  | 94.3 | 95.3 | 0.26 | \*\*\* |  | 80.9 | 84.1 | 0.80 | \*\*\* |  | 94.4 | 94.4 | 0.00 | \*\*\* |  | 96.0 | 97.9 | 0.48 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Sudan (SDN) | ARS | MICS | MICS |  | 2010 | 2014 |  | 61.8 | 65.0 | 0.81 | \*\*\* |  | 26.7 | 30.1 | 0.84 | \*\*\* |  | 47.5 | 52.1 | 1.16 | \*\*\* |  | 63.3 | 67.4 | 1.03 | \*\*\* |  | 78.1 | 81.1 | 0.75 | \*\*\* |  | 93.4 | 94.5 | 0.27 | \*\*\* |
| Yemen (YEM) | ARS | MICS | DHS |  | 2006 | 2013 |  | 73.1 | 78.6 | 0.79 | \*\*\* |  | 39.1 | 46.8 | 1.09 | \*\*\* |  | 63.4 | 69.8 | 0.91 | \*\*\* |  | 76.7 | 83.3 | 0.94 | \*\*\* |  | 87.3 | 93.2 | 0.85 | \*\*\* |  | 98.9 | 100.0 | 0.16 | \*\*\* |
| Cambodia (KHM) | EAP | DHS | DHS |  | 2010 | 2014 |  | 68.9 | 73.9 | 1.26 | \*\*\* |  | 39.3 | 45.8 | 1.61 | \*\*\* |  | 59.4 | 65.1 | 1.43 | \*\*\* |  | 71.0 | 76.4 | 1.36 | \*\*\* |  | 80.8 | 85.9 | 1.30 | \*\*\* |  | 93.8 | 96.3 | 0.62 | \*\*\* |
| China (CHN) | EAP | CFPS | CFPS |  | 2010 | 2014 |  | 84.9 | 88.7 | 0.97 | \*\*\* |  | 63.7 | 70.3 | 1.66 | \*\*\* |  | 78.6 | 83.5 | 1.22 | \*\*\* |  | 87.0 | 91.5 | 1.14 | \*\*\* |  | 95.0 | 98.4 | 0.84 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Indonesia (IDN) | EAP | DHS | DHS |  | 2012 | 2017 |  | 90.9 | 94.4 | 0.70 | \*\*\* |  | 71.8 | 79.3 | 1.49 | \*\*\* |  | 88.2 | 93.7 | 1.10 | \*\*\* |  | 94.6 | 99.2 | 0.91 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Lao PDR (LAO) | EAP | MICS | MICS |  | 2011-12 | 2017 |  | 71.0 | 80.1 | 1.66 | \*\*\* |  | 35.2 | 51.1 | 2.89 | \*\*\* |  | 60.1 | 73.8 | 2.50 | \*\*\* |  | 75.5 | 85.6 | 1.83 | \*\*\* |  | 89.0 | 94.3 | 0.97 | \*\*\* |  | 95.2 | 95.8 | 0.11 | \*\*\* |
| Philippines (PHL) | EAP | DHS | DHS |  | 2013 | 2017 |  | 88.6 | 90.9 | 0.57 | \*\*\* |  | 67.3 | 71.9 | 1.16 | \*\*\* |  | 86.7 | 88.7 | 0.49 | \*\*\* |  | 92.6 | 94.4 | 0.46 | \*\*\* |  | 96.5 | 99.5 | 0.74 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Thailand (THA) | EAP | MICS | MICS |  | 2012 | 2015-16 |  | 94.2 | 95.1 | 0.27 | \*\*\* |  | 79.0 | 80.6 | 0.45 | \*\*\* |  | 93.0 | 95.1 | 0.58 | \*\*\* |  | 98.9 | 100.0 | 0.31 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Timor-Leste (TLS) | EAP | DHS | DHS |  | 2009-10 | 2016 |  | 58.2 | 69.1 | 1.69 | \*\*\* |  | 29.6 | 43.2 | 2.11 | \*\*\* |  | 47.1 | 60.7 | 2.09 | \*\*\* |  | 58.5 | 70.3 | 1.81 | \*\*\* |  | 69.9 | 79.6 | 1.49 | \*\*\* |  | 85.8 | 91.9 | 0.95 | \*\*\* |
| Vietnam (VNM) | EAP | MICS | MICS |  | 2010-11 | 2014 |  | 90.7 | 91.7 | 0.29 | \*\*\* |  | 69.2 | 70.4 | 0.36 | \* |  | 89.5 | 91.3 | 0.53 | \*\*\* |  | 94.9 | 96.8 | 0.57 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Albania (ALB) | ECA | DHS | DHS |  | 2008-9 | 2017-18 |  | 93.5 | 95.2 | 0.19 | \*\*\* |  | 79.0 | 84.2 | 0.57 | \*\*\* |  | 92.0 | 94.4 | 0.27 | \*\*\* |  | 96.2 | 97.2 | 0.11 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Armenia (ARM) | ECA | DHS | DHS |  | 2010 | 2015-16 |  | 96.6 | 97.1 | 0.09 | \*\*\* |  | 86.5 | 89.0 | 0.46 | \*\*\* |  | 96.4 | 96.4 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Bosnia and Herzegovina (BIH) | ECA | MICS | MICS |  | 2006 | 2011-12 |  | 93.1 | 94.0 | 0.17 | \*\*\* |  | 77.7 | 84.7 | 1.29 | \*\*\* |  | 93.5 | 94.4 | 0.17 | \*\*\* |  | 94.4 | 94.4 | 0.00 | \*\*\* |  | 99.8 | 96.5 | -0.61 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Kazakhstan (KAZ) | ECA | MICS | MICS |  | 2010-11 | 2015 |  | 95.0 | 97.1 | 0.47 | \*\*\* |  | 82.0 | 87.0 | 1.11 | \*\*\* |  | 94.2 | 98.6 | 0.97 | \*\*\* |  | 98.8 | 100.0 | 0.26 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Kyrgyzstan (KGZ) | ECA | MICS | MICS |  | 2005-6 | 2014 |  | 86.9 | 91.4 | 0.53 | \*\*\* |  | 68.4 | 75.5 | 0.85 | \*\*\* |  | 82.1 | 88.8 | 0.78 | \*\*\* |  | 89.2 | 94.4 | 0.61 | \*\*\* |  | 94.9 | 98.4 | 0.41 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Macedonia (MKD) | ECA | MICS | MICS |  | 2005-6 | 2011 |  | 92.7 | 96.0 | 0.59 | \*\*\* |  | 73.6 | 85.3 | 2.12 | \*\*\* |  | 93.5 | 94.5 | 0.19 | \*\*\* |  | 96.4 | 100.0 | 0.66 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Moldova (MDA) | ECA | DHS | MICS |  | 2005 | 2012 |  | 95.1 | 95.5 | 0.06 | \*\*\* |  | 82.1 | 84.9 | 0.40 | \*\*\* |  | 94.4 | 94.4 | 0.00 | \*\*\* |  | 98.9 | 98.2 | -0.10 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Mongolia (MNG) | ECA | MICS | MICS |  | 2010 | 2013 |  | 80.1 | 84.0 | 1.29 | \*\*\* |  | 58.6 | 62.8 | 1.40 | \*\*\* |  | 74.9 | 78.9 | 1.35 | \*\*\* |  | 82.2 | 86.7 | 1.49 | \*\*\* |  | 86.6 | 92.4 | 1.95 | \*\*\* |  | 98.3 | 99.1 | 0.27 | \*\*\* |
| Montenegro (MNE) | ECA | MICS | MICS |  | 2005-6 | 2013 |  | 95.3 | 95.2 | -0.01 |  |  | 82.9 | 85.1 | 0.29 | \* |  | 94.4 | 94.4 | 0.00 | \*\*\* |  | 99.0 | 96.3 | -0.36 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Serbia (SRB) | ECA | MICS | MICS |  | 2010 | 2014 |  | 96.4 | 96.7 | 0.06 | \*\* |  | 87.5 | 88.7 | 0.30 | \*\*\* |  | 94.7 | 94.6 | -0.01 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Tajikistan (TJK) | ECA | DHS | DHS |  | 2012 | 2017 |  | 84.0 | 87.2 | 0.65 | \*\*\* |  | 64.5 | 69.2 | 0.94 | \*\*\* |  | 76.9 | 81.5 | 0.90 | \*\*\* |  | 85.9 | 90.6 | 0.94 | \*\*\* |  | 93.2 | 94.9 | 0.33 | \*\*\* |  | 99.3 | 100.0 | 0.14 | \*\*\* |
| Turkmenistan (TKM) | ECA | MICS | MICS |  | 2006 | 2015-16 |  | 91.6 | 95.5 | 0.41 | \*\*\* |  | 75.6 | 81.7 | 0.63 | \*\*\* |  | 87.6 | 95.6 | 0.85 | \*\*\* |  | 94.6 | 100.0 | 0.57 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Ukraine (UKR) | ECA | DHS | MICS |  | 2007 | 2012 |  | 97.9 | 99.0 | 0.22 | \*\*\* |  | 89.5 | 94.8 | 1.06 | \*\*\* |  | 99.8 | 100.0 | 0.03 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Belize (BLZ) | LAC | MICS | MICS |  | 2011 | 2015-16 |  | 91.5 | 92.6 | 0.23 | \*\*\* |  | 71.1 | 74.1 | 0.68 | \*\*\* |  | 88.6 | 90.5 | 0.42 | \*\*\* |  | 98.0 | 98.2 | 0.05 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Bolivia (BOL) | LAC | DHS | DHS |  | 2003 | 2008 |  | 74.0 | 82.9 | 1.78 | \*\*\* |  | 42.6 | 53.3 | 2.14 | \*\*\* |  | 65.4 | 76.5 | 2.22 | \*\*\* |  | 78.3 | 89.2 | 2.19 | \*\*\* |  | 88.9 | 95.6 | 1.34 | \*\*\* |  | 95.0 | 100.0 | 1.01 | \*\*\* |
| Colombia (COL) | LAC | DHS | DHS |  | 2010 | 2015-16 |  | 93.1 | 94.1 | 0.19 | \*\*\* |  | 73.3 | 75.6 | 0.42 | \*\*\* |  | 92.2 | 95.0 | 0.51 | \*\*\* |  | 99.9 | 100.0 | 0.02 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Dominican Republic (DOM) | LAC | DHS | MICS |  | 2007 | 2014 |  | 89.5 | 94.5 | 0.72 | \*\*\* |  | 69.5 | 78.5 | 1.30 | \*\*\* |  | 87.2 | 94.2 | 1.00 | \*\*\* |  | 94.3 | 100.0 | 0.81 | \*\*\* |  | 96.4 | 100.0 | 0.52 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Guyana (GUY) | LAC | DHS | MICS |  | 2009 | 2014 |  | 92.3 | 94.5 | 0.43 | \*\*\* |  | 72.8 | 77.8 | 1.00 | \*\*\* |  | 90.9 | 94.7 | 0.77 | \*\*\* |  | 98.1 | 100.0 | 0.39 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Haiti (HTI) | LAC | DHS | DHS |  | 2012 | 2016-17 |  | 67.9 | 71.3 | 0.77 | \*\*\* |  | 38.7 | 41.7 | 0.68 | \*\*\* |  | 56.8 | 62.1 | 1.17 | \*\*\* |  | 70.3 | 74.6 | 0.96 | \*\*\* |  | 81.5 | 84.8 | 0.73 | \*\*\* |  | 92.1 | 93.4 | 0.30 | \*\*\* |
| Honduras (HND) | LAC | DHS | DHS |  | 2005-6 | 2011-12 |  | 72.7 | 81.6 | 1.49 | \*\*\* |  | 39.1 | 53.5 | 2.39 | \*\*\* |  | 61.8 | 74.7 | 2.16 | \*\*\* |  | 75.6 | 85.2 | 1.61 | \*\*\* |  | 87.7 | 94.7 | 1.17 | \*\*\* |  | 99.1 | 100.0 | 0.15 | \*\*\* |
| Jamaica (JAM) | LAC | JSLC | JSLC |  | 2010 | 2014 |  | 91.4 | 91.9 | 0.12 | \*\* |  | 74.2 | 75.8 | 0.39 |  |  | 88.2 | 89.2 | 0.26 | \*\*\* |  | 94.5 | 94.4 | -0.01 | \* |  | 100.0 | 99.8 | -0.05 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Mexico (MEX) | LAC | ENSANUT | ENSANUT |  | 2012 | 2016 |  | 93.3 | 93.8 | 0.12 | \*\*\* |  | 73.3 | 75.2 | 0.47 | \*\*\* |  | 93.3 | 93.7 | 0.08 | \*\*\* |  | 99.8 | 100.0 | 0.04 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Nicaragua (NIC) | LAC | DHS | DHS |  | 2001 | 2011-12 |  | 71.3 | 85.3 | 1.33 | \*\*\* |  | 33.6 | 57.8 | 2.30 | \*\*\* |  | 58.9 | 80.0 | 2.01 | \*\*\* |  | 76.4 | 91.1 | 1.40 | \*\*\* |  | 89.0 | 97.4 | 0.80 | \*\*\* |  | 98.7 | 100.0 | 0.12 | \*\*\* |
| Peru (PER) | LAC | DHS | ENDES |  | 2012 | 2018 |  | 87.3 | 90.6 | 0.55 | \*\*\* |  | 63.9 | 71.1 | 1.20 | \*\*\* |  | 82.5 | 86.4 | 0.65 | \*\*\* |  | 91.6 | 95.2 | 0.61 | \*\*\* |  | 98.4 | 100.0 | 0.27 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |
| Suriname (SUR) | LAC | MICS | MICS |  | 2006 | 2010 |  | 91.0 | 93.1 | 0.51 | \*\*\* |  | 62.8 | 70.5 | 1.93 | \*\*\* |  | 92.8 | 94.9 | 0.52 | \*\*\* |  | 99.5 | 100.0 | 0.11 | \*\*\* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Trinidad and Tobago (TTO) | LAC | MICS | MICS |  | 2006 | 2011 |  | 96.3 | 96.1 | -0.03 |  |  | 83.3 | 82.3 | -0.19 |  |  | 98.0 | 98.3 | 0.06 | \* |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |  | 100.0 | 100.0 | 0.00 |  |
| Afghanistan (AFG) | SAS | MICS | DHS |  | 2010-11 | 2015-16 |  | 51.8 | 59.0 | 1.44 | \*\*\* |  | 19.0 | 23.1 | 0.81 | \*\*\* |  | 39.0 | 46.9 | 1.59 | \*\*\* |  | 51.8 | 60.8 | 1.80 | \*\*\* |  | 65.1 | 74.2 | 1.81 | \*\*\* |  | 84.2 | 90.2 | 1.22 | \*\*\* |
| Bangladesh (BGD) | SAS | DHS | MICS |  | 2014 | 2019 |  | 73.1 | 79.7 | 1.33 | \*\*\* |  | 45.1 | 56.2 | 2.22 | \*\*\* |  | 64.2 | 73.1 | 1.78 | \*\*\* |  | 75.9 | 83.4 | 1.51 | \*\*\* |  | 85.4 | 89.1 | 0.74 | \*\*\* |  | 94.7 | 96.8 | 0.41 | \*\*\* |
| India (IND) | SAS | DHS | DHS |  | 2005-6 | 2015-16 |  | 65.1 | 79.0 | 1.39 | \*\*\* |  | 32.0 | 51.9 | 1.99 | \*\*\* |  | 53.5 | 71.0 | 1.75 | \*\*\* |  | 66.2 | 81.3 | 1.51 | \*\*\* |  | 78.9 | 91.4 | 1.25 | \*\*\* |  | 94.9 | 99.2 | 0.43 | \*\*\* |
| Nepal (NPL) | SAS | DHS | DHS |  | 2011 | 2016 |  | 71.4 | 77.6 | 1.23 | \*\*\* |  | 40.4 | 51.6 | 2.23 | \*\*\* |  | 61.6 | 69.5 | 1.57 | \*\*\* |  | 73.6 | 80.2 | 1.31 | \*\*\* |  | 85.4 | 89.0 | 0.72 | \*\*\* |  | 96.0 | 97.6 | 0.31 | \*\*\* |
| Pakistan (PAK) | SAS | DHS | DHS |  | 2012-13 | 2017-18 |  | 70.1 | 73.6 | 0.70 | \*\*\* |  | 33.5 | 36.6 | 0.62 | \*\*\* |  | 57.6 | 61.8 | 0.84 | \*\*\* |  | 73.4 | 79.1 | 1.13 | \*\*\* |  | 87.2 | 90.5 | 0.66 | \*\*\* |  | 98.7 | 100.0 | 0.25 | \*\*\* |
| Benin (BEN) | SSA | MICS | DHS |  | 2014 | 2017-18 |  | 59.2 | 58.0 | -0.34 | \*\*\* |  | 26.5 | 25.5 | -0.29 | \*\* |  | 45.9 | 44.6 | -0.38 | \*\*\* |  | 60.0 | 58.7 | -0.37 | \*\*\* |  | 73.9 | 72.3 | -0.46 | \*\*\* |  | 89.6 | 88.8 | -0.22 | \*\*\* |
| Burkina Faso (BFA) | SSA | MICS | DHS |  | 2006 | 2010 |  | 37.1 | 40.4 | 0.81 | \*\*\* |  | 6.9 | 9.5 | 0.65 | \*\*\* |  | 22.3 | 24.8 | 0.62 | \*\*\* |  | 35.0 | 37.8 | 0.71 | \*\*\* |  | 48.8 | 52.1 | 0.84 | \*\*\* |  | 72.7 | 77.5 | 1.22 | \*\*\* |
| Burundi (BDI) | SSA | DHS | DHS |  | 2010 | 2016-17 |  | 49.9 | 54.1 | 0.64 | \*\*\* |  | 23.5 | 26.0 | 0.38 | \*\*\* |  | 38.1 | 42.6 | 0.69 | \*\*\* |  | 50.5 | 54.4 | 0.60 | \*\*\* |  | 59.8 | 65.8 | 0.92 | \*\*\* |  | 77.7 | 81.6 | 0.59 | \*\*\* |
| Cameroon (CMR) | SSA | DHS | MICS |  | 2011 | 2014 |  | 66.8 | 68.3 | 0.51 | \*\*\* |  | 29.6 | 31.4 | 0.60 | \*\* |  | 54.3 | 56.1 | 0.61 | \*\*\* |  | 70.7 | 72.2 | 0.49 | \*\*\* |  | 83.8 | 85.4 | 0.56 | \*\*\* |  | 95.7 | 96.6 | 0.28 | \*\*\* |
| Central African Republic (CAF) | SSA | MICS | MICS |  | 2000 | 2010 |  | 40.4 | 48.0 | 0.76 | \*\*\* |  | 11.8 | 17.4 | 0.55 | \*\*\* |  | 27.8 | 35.5 | 0.77 | \*\*\* |  | 38.9 | 48.5 | 0.95 | \*\*\* |  | 52.1 | 60.0 | 0.79 | \*\*\* |  | 71.3 | 78.6 | 0.72 | \*\*\* |
| Chad (TCD) | SSA | MICS | DHS |  | 2010 | 2014-15 |  | 38.0 | 40.0 | 0.44 | \*\*\* |  | 9.5 | 11.6 | 0.47 | \*\*\* |  | 24.1 | 27.1 | 0.68 | \*\*\* |  | 36.0 | 37.8 | 0.38 | \*\*\* |  | 49.5 | 51.6 | 0.45 | \*\*\* |  | 70.7 | 71.7 | 0.22 |  |
| Congo, DR (COD) | SSA | DHS | DHS |  | 2007 | 2013-14 |  | 51.8 | 55.8 | 0.62 | \*\*\* |  | 24.2 | 28.4 | 0.65 | \*\*\* |  | 37.5 | 46.6 | 1.39 | \*\*\* |  | 51.4 | 55.1 | 0.57 | \*\*\* |  | 63.8 | 67.4 | 0.55 | \*\*\* |  | 81.9 | 81.6 | -0.05 |  |
| Côte d’Ivoire (CIV) | SSA | DHS | MICS |  | 2011-12 | 2016 |  | 62.4 | 69.3 | 1.53 | \*\*\* |  | 30.0 | 35.8 | 1.28 | \*\*\* |  | 50.3 | 56.4 | 1.36 | \*\*\* |  | 63.1 | 71.9 | 1.96 | \*\*\* |  | 76.2 | 84.8 | 1.92 | \*\*\* |  | 92.4 | 97.4 | 1.12 | \*\*\* |
| Eswatini (SWZ) | SSA | MICS | MICS |  | 2010 | 2014 |  | 77.2 | 82.2 | 1.26 | \*\*\* |  | 50.9 | 58.3 | 1.84 | \*\*\* |  | 69.6 | 75.5 | 1.49 | \*\*\* |  | 80.0 | 85.8 | 1.45 | \*\*\* |  | 88.2 | 93.2 | 1.24 | \*\*\* |  | 97.2 | 98.4 | 0.29 | \*\*\* |
| Ethiopia (ETH) | SSA | DHS | DHS |  | 2011 | 2016 |  | 43.3 | 47.9 | 0.92 | \*\*\* |  | 16.0 | 20.7 | 0.94 | \*\*\* |  | 32.9 | 35.0 | 0.41 | \*\*\* |  | 40.3 | 47.2 | 1.39 | \*\*\* |  | 52.9 | 58.5 | 1.12 | \*\*\* |  | 74.5 | 78.2 | 0.75 | \*\*\* |
| Gabon (GAB) | SSA | DHS | DHS |  | 2000 | 2012 |  | 77.5 | 85.2 | 0.64 | \*\*\* |  | 46.6 | 59.1 | 1.04 | \*\*\* |  | 68.4 | 79.7 | 0.94 | \*\*\* |  | 80.8 | 91.1 | 0.86 | \*\*\* |  | 92.6 | 96.1 | 0.29 | \*\*\* |  | 99.4 | 100.0 | 0.05 | \*\*\* |
| Gambia (GMB) | SSA | MICS | DHS |  | 2005-6 | 2013 |  | 55.8 | 64.4 | 1.15 | \*\*\* |  | 21.3 | 33.4 | 1.61 | \*\*\* |  | 41.8 | 52.6 | 1.44 | \*\*\* |  | 56.8 | 66.0 | 1.23 | \*\*\* |  | 71.2 | 78.0 | 0.90 | \*\*\* |  | 87.6 | 91.9 | 0.57 | \*\*\* |
| Ghana (GHA) | SSA | MICS | DHS |  | 2011 | 2014 |  | 75.2 | 77.9 | 0.91 | \*\*\* |  | 45.3 | 52.3 | 2.33 | \*\*\* |  | 67.8 | 71.3 | 1.18 | \*\*\* |  | 79.4 | 81.2 | 0.61 | \*\*\* |  | 87.9 | 88.8 | 0.31 | \*\*\* |  | 95.7 | 96.1 | 0.11 |  |
| Guinea (GIN) | SSA | DHS | MICS |  | 2012 | 2018 |  | 51.7 | 56.7 | 0.83 | \*\*\* |  | 19.7 | 24.0 | 0.71 | \*\*\* |  | 36.7 | 43.4 | 1.12 | \*\*\* |  | 50.7 | 56.5 | 0.96 | \*\*\* |  | 66.3 | 71.5 | 0.86 | \*\*\* |  | 85.4 | 88.4 | 0.50 | \*\*\* |
| Kenya (KEN) | SSA | DHS | DHS |  | 2008-9 | 2014 |  | 65.7 | 70.1 | 0.79 | \*\*\* |  | 40.4 | 45.8 | 0.99 | \*\*\* |  | 57.0 | 63.1 | 1.11 | \*\*\* |  | 68.3 | 73.1 | 0.86 | \*\*\* |  | 75.5 | 79.5 | 0.73 | \*\*\* |  | 87.5 | 89.0 | 0.27 | \*\*\* |
| Lesotho (LSO) | SSA | DHS | DHS |  | 2009 | 2014 |  | 68.7 | 74.7 | 1.20 | \*\*\* |  | 42.8 | 49.0 | 1.26 | \*\*\* |  | 58.9 | 66.1 | 1.44 | \*\*\* |  | 69.5 | 75.7 | 1.25 | \*\*\* |  | 79.8 | 85.9 | 1.22 | \*\*\* |  | 92.6 | 96.8 | 0.83 | \*\*\* |
| Liberia (LBR) | SSA | DHS | DHS |  | 2007 | 2013 |  | 49.7 | 60.1 | 1.73 | \*\*\* |  | 22.9 | 31.3 | 1.40 | \*\*\* |  | 37.2 | 50.8 | 2.27 | \*\*\* |  | 50.2 | 60.5 | 1.73 | \*\*\* |  | 60.3 | 72.6 | 2.05 | \*\*\* |  | 78.1 | 85.2 | 1.19 | \*\*\* |
| Madagascar (MDG) | SSA | DHS | MICS |  | 2008-9 | 2018 |  | 52.1 | 56.9 | 0.50 | \*\*\* |  | 24.4 | 26.3 | 0.20 | \*\*\* |  | 37.9 | 43.9 | 0.63 | \*\*\* |  | 51.6 | 56.3 | 0.49 | \*\*\* |  | 63.8 | 71.4 | 0.80 | \*\*\* |  | 83.0 | 86.4 | 0.35 | \*\*\* |
| Malawi (MWI) | SSA | DHS | DHS |  | 2010 | 2015-16 |  | 59.2 | 65.8 | 1.19 | \*\*\* |  | 33.0 | 41.3 | 1.50 | \*\*\* |  | 51.6 | 57.5 | 1.08 | \*\*\* |  | 59.3 | 67.1 | 1.41 | \*\*\* |  | 70.0 | 75.5 | 1.01 | \*\*\* |  | 82.3 | 87.4 | 0.94 | \*\*\* |
| Mali (MLI) | SSA | DHS | MICS |  | 2006 | 2015 |  | 47.0 | 53.7 | 0.74 | \*\*\* |  | 19.4 | 23.2 | 0.42 | \*\*\* |  | 34.2 | 40.1 | 0.65 | \*\*\* |  | 44.5 | 51.7 | 0.80 | \*\*\* |  | 57.4 | 66.8 | 1.05 | \*\*\* |  | 79.4 | 86.6 | 0.80 | \*\*\* |
| Mauritania (MRT) | SSA | MICS | MICS |  | 2011 | 2015 |  | 58.7 | 66.9 | 2.04 | \*\*\* |  | 24.5 | 34.1 | 2.40 | \*\*\* |  | 43.2 | 54.4 | 2.79 | \*\*\* |  | 58.8 | 68.1 | 2.34 | \*\*\* |  | 74.6 | 81.4 | 1.69 | \*\*\* |  | 92.6 | 96.5 | 0.99 | \*\*\* |
| Mozambique (MOZ) | SSA | DHS | DHS |  | 2003 | 2011 |  | 45.5 | 55.2 | 1.21 | \*\*\* |  | 16.9 | 24.6 | 0.95 | \*\*\* |  | 33.4 | 41.0 | 0.95 | \*\*\* |  | 43.6 | 54.3 | 1.34 | \*\*\* |  | 55.2 | 68.1 | 1.61 | \*\*\* |  | 78.4 | 87.9 | 1.19 | \*\*\* |
| Namibia (NAM) | SSA | DHS | DHS |  | 2006-7 | 2013 |  | 71.6 | 75.7 | 0.63 | \*\*\* |  | 42.3 | 47.7 | 0.84 | \*\*\* |  | 60.2 | 66.2 | 0.92 | \*\*\* |  | 72.9 | 77.1 | 0.65 | \*\*\* |  | 84.3 | 88.3 | 0.62 | \*\*\* |  | 98.4 | 99.3 | 0.14 | \*\*\* |
| Niger (NER) | SSA | DHS | DHS |  | 2006 | 2012 |  | 31.9 | 38.8 | 1.15 | \*\*\* |  | 7.5 | 12.9 | 0.90 | \*\*\* |  | 18.6 | 25.6 | 1.17 | \*\*\* |  | 29.5 | 36.3 | 1.13 | \*\*\* |  | 38.8 | 47.7 | 1.49 | \*\*\* |  | 64.9 | 71.3 | 1.06 | \*\*\* |
| Nigeria (NGA) | SSA | DHS | DHS |  | 2013 | 2018 |  | 64.1 | 66.7 | 0.53 | \*\*\* |  | 25.8 | 28.6 | 0.57 | \*\*\* |  | 50.8 | 54.9 | 0.81 | \*\*\* |  | 67.9 | 71.4 | 0.70 | \*\*\* |  | 81.8 | 83.8 | 0.40 | \*\*\* |  | 94.1 | 94.9 | 0.17 | \*\*\* |
| Republic of Congo (COG) | SSA | DHS | MICS |  | 2005 | 2014-15 |  | 66.1 | 79.0 | 1.36 | \*\*\* |  | 38.7 | 51.1 | 1.30 | \*\*\* |  | 55.3 | 72.4 | 1.80 | \*\*\* |  | 68.1 | 82.8 | 1.54 | \*\*\* |  | 77.1 | 91.4 | 1.50 | \*\*\* |  | 91.1 | 97.3 | 0.65 | \*\*\* |
| Rwanda (RWA) | SSA | DHS | DHS |  | 2010 | 2014-15 |  | 58.4 | 65.4 | 1.56 | \*\*\* |  | 32.4 | 40.2 | 1.75 | \*\*\* |  | 48.8 | 56.1 | 1.62 | \*\*\* |  | 58.2 | 66.6 | 1.86 | \*\*\* |  | 68.9 | 76.0 | 1.57 | \*\*\* |  | 83.5 | 87.9 | 0.99 | \*\*\* |
| São Tomé and Príncipe (STP) | SSA | DHS | MICS |  | 2008-9 | 2014 |  | 73.1 | 81.9 | 1.61 | \*\*\* |  | 45.6 | 57.4 | 2.14 | \*\*\* |  | 63.2 | 74.3 | 2.02 | \*\*\* |  | 74.6 | 85.2 | 1.91 | \*\*\* |  | 85.5 | 93.1 | 1.38 | \*\*\* |  | 96.3 | 99.7 | 0.61 | \*\*\* |
| Senegal (SEN) | SSA | DHS | DHS |  | 2005 | 2017 |  | 57.9 | 65.5 | 0.63 | \*\*\* |  | 18.7 | 30.6 | 0.99 | \*\*\* |  | 40.2 | 50.5 | 0.87 | \*\*\* |  | 57.4 | 66.9 | 0.79 | \*\*\* |  | 76.3 | 82.1 | 0.49 | \*\*\* |  | 97.1 | 97.5 | 0.04 |  |
| Sierra Leone (SLE) | SSA | DHS | MICS |  | 2013 | 2017 |  | 53.9 | 62.4 | 2.12 | \*\*\* |  | 25.0 | 32.0 | 1.75 | \*\*\* |  | 41.8 | 51.8 | 2.52 | \*\*\* |  | 53.9 | 63.8 | 2.47 | \*\*\* |  | 66.4 | 76.0 | 2.40 | \*\*\* |  | 82.5 | 88.3 | 1.45 | \*\*\* |
| Tanzania (TZA) | SSA | DHS | DHS |  | 2010 | 2015-16 |  | 59.3 | 63.5 | 0.77 | \*\*\* |  | 32.3 | 35.7 | 0.62 | \*\*\* |  | 50.8 | 53.4 | 0.48 | \*\*\* |  | 58.6 | 64.6 | 1.08 | \*\*\* |  | 70.1 | 74.7 | 0.85 | \*\*\* |  | 84.6 | 89.2 | 0.83 | \*\*\* |
| Togo (TGO) | SSA | MICS | DHS |  | 2010 | 2013-14 |  | 61.1 | 62.2 | 0.32 | \*\*\* |  | 26.4 | 27.0 | 0.18 |  |  | 49.1 | 50.6 | 0.42 | \*\*\* |  | 63.2 | 65.3 | 0.59 | \*\*\* |  | 76.5 | 77.0 | 0.13 | \* |  | 90.3 | 91.2 | 0.26 | \*\*\* |
| Uganda (UGA) | SSA | DHS | DHS |  | 2011 | 2016 |  | 58.2 | 63.7 | 1.09 | \*\*\* |  | 30.7 | 36.3 | 1.12 | \*\*\* |  | 49.9 | 54.2 | 0.87 | \*\*\* |  | 57.9 | 65.0 | 1.42 | \*\*\* |  | 69.9 | 75.0 | 1.02 | \*\*\* |  | 82.9 | 88.0 | 1.02 | \*\*\* |
| Zambia (ZMB) | SSA | DHS | DHS |  | 2007 | 2013-14 |  | 59.7 | 65.4 | 0.87 | \*\*\* |  | 29.5 | 36.6 | 1.10 | \*\*\* |  | 47.1 | 54.6 | 1.16 | \*\*\* |  | 58.7 | 66.4 | 1.18 | \*\*\* |  | 72.1 | 77.0 | 0.75 | \*\*\* |  | 91.2 | 92.2 | 0.15 | \* |
| Zimbabwe (ZWE) | SSA | DHS | DHS |  | 2010-11 | 2015 |  | 73.0 | 75.2 | 0.49 | \*\*\* |  | 48.4 | 51.0 | 0.58 | \*\*\* |  | 63.8 | 67.1 | 0.72 | \*\*\* |  | 74.1 | 75.8 | 0.38 | \*\*\* |  | 82.5 | 85.2 | 0.60 | \*\*\* |  | 96.2 | 97.0 | 0.18 | \*\*\* |
| Source: Authors’ computations.  Statistical significance: \*\*\*: , \*\*: , \*: .  Notes: is the overall average attainment for period (); is the annual absolute change in overall average; is the average attainment score within quintile () for period (); and is the annual absolute change in the th quintile.  Region abbreviations: ARS: Arab States; EAP: East Asia and the Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; SAS: South Asia; SSA: Sub-Saharan Africa.  Survey abbreviations: DHS: Demographic Health Survey; MICS: Multiple Indicator Cluster Survey; CFPS: China Family Panel Study; JSLC: Jamaica Survey of Living Conditions; ENSANUT: Mexico National Survey of Health and Nutrition; ENDES: Peru Demographic and Family Health Survey. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table A. Inclusivity premiums, shared prosperity premiums and changes in the MPIs and MPI headcount ratios

|  |  | Year | |  | Well-being | | | |  | MPI | | | |  | H | | | |  | Income Growth | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Region | 1st | 2nd |  |  |  |  | |  | MPI1 | MPI2 | MPI | |  | H1 | H2 | H (%pt) | |  | Year1 | Year2 | G | G40 | SPP |
| Egypt | ARS | 2008 | 2014 |  | 78.5 | 82.6 | 0.36 | \*\*\* |  | 0.032 | 0.018 | -0.002 | \*\*\* |  | 8.0 | 4.9 | -0.5 | \*\*\* |  | 2012 | 2017 | -1.1 | -2.5 | -1.4 |
| Iraq | ARS | 2011 | 2018 |  | 73.9 | 79.0 | 0.30 | \*\*\* |  | 0.057 | 0.036 | -0.003 | \*\*\* |  | 14.4 | 9.3 | -0.7 | \*\*\* |  |  |  |  |  |  |
| Jordan | ARS | 2012 | 2017-18 |  | 94.0 | 94.9 | 0.11 | \*\*\* |  | 0.002 | 0.002 | 0.000 |  |  | 0.5 | 0.4 | 0.0 |  |  |  |  |  |  |  |
| State of Palestine | ARS | 2010 | 2014 |  | 87.1 | 89.1 | 0.24 | \*\*\* |  | 0.005 | 0.004 | 0.000 |  |  | 1.3 | 1.0 | -0.1 |  |  | 2011 | 2016 | -0.6 | -0.9 | -0.3 |
| Sudan | ARS | 2010 | 2014 |  | 37.7 | 41.6 | 0.16 | \*\*\* |  | 0.317 | 0.280 | -0.009 | \*\*\* |  | 57.0 | 52.4 | -1.2 | \*\* |  |  |  |  |  |  |
| Yemen | ARS | 2006 | 2013 |  | 51.4 | 58.5 | 0.22 | \*\*\* |  | 0.189 | 0.139 | -0.007 | \*\*\* |  | 38.0 | 29.2 | -1.3 | \*\*\* |  |  |  |  |  |  |
| Cambodia | EAP | 2010 | 2014 |  | 49.5 | 55.6 | 0.26 | \*\*\* |  | 0.228 | 0.170 | -0.014 | \*\*\* |  | 47.7 | 37.2 | -2.6 | \*\*\* |  |  |  |  |  |  |
| China | EAP | 2010 | 2014 |  | 71.3 | 77.1 | 0.48 | \*\*\* |  | 0.041 | 0.018 | -0.006 | \*\*\* |  | 9.5 | 4.4 | -1.3 | \*\*\* |  | 2013 | 2016 | 7.1 | 8.4 | 1.3 |
| Indonesia | EAP | 2012 | 2017 |  | 79.8 | 86.3 | 0.60 | \*\*\* |  | 0.028 | 0.014 | -0.003 | \*\*\* |  | 6.9 | 3.6 | -0.7 | \*\*\* |  | 2015 | 2019 | 3.8 | 4.6 | 0.8 |
| Lao PDR | EAP | 2011-12 | 2017 |  | 48.0 | 62.5 | 0.98 | \*\*\* |  | 0.211 | 0.108 | -0.019 | \*\*\* |  | 40.4 | 23.1 | -3.2 | \*\*\* |  | 2012 | 2018 | 3.1 | 1.9 | -1.2 |
| Philippines | EAP | 2013 | 2017 |  | 76.6 | 80.0 | 0.29 | \*\*\* |  | 0.037 | 0.028 | -0.002 | \*\*\* |  | 7.1 | 5.6 | -0.4 | \*\*\* |  | 2015 | 2018 | 3.3 | 6.1 | 2.7 |
| Thailand | EAP | 2012 | 2015-16 |  | 85.9 | 87.6 | 0.21 | \*\*\* |  | 0.005 | 0.003 | -0.001 | \* |  | 1.4 | 0.9 | -0.2 | \*\* |  | 2015 | 2019 | 0.1 | 0.7 | 0.6 |
| Timor-Leste | EAP | 2009-10 | 2016 |  | 38.6 | 52.1 | 0.38 | \*\*\* |  | 0.362 | 0.215 | -0.023 | \*\*\* |  | 69.6 | 46.9 | -3.5 | \*\*\* |  |  |  |  |  |  |
| Vietnam | EAP | 2010-11 | 2014 |  | 78.8 | 80.3 | 0.15 | \*\* |  | 0.039 | 0.036 | -0.001 |  |  | 9.3 | 8.8 | -0.1 |  |  | 2014 | 2018 | 6.5 | 5.8 | -0.7 |
| Albania | ECA | 2008-9 | 2017-18 |  | 85.3 | 89.1 | 0.23 | \*\*\* |  | 0.008 | 0.003 | -0.001 | \*\*\* |  | 2.1 | 0.7 | -0.2 | \*\*\* |  | 2014 | 2017 | 0.8 | 2.5 | 1.7 |
| Armenia | ECA | 2010 | 2015-16 |  | 91.3 | 92.7 | 0.16 | \*\*\* |  | 0.001 | 0.001 | 0.000 | \* |  | 0.4 | 0.2 | 0.0 | \* |  | 2013 | 2018 | 2.4 | 1.3 | -1.1 |
| Bosnia and Herzegovina | ECA | 2006 | 2011-12 |  | 84.8 | 89.1 | 0.60 | \*\*\* |  | 0.015 | 0.008 | -0.001 | \*\*\* |  | 4.0 | 2.2 | -0.3 | \*\*\* |  |  |  |  |  |  |
| Kazakhstan | ECA | 2010-11 | 2015 |  | 87.9 | 92.3 | 0.50 | \*\*\* |  | 0.003 | 0.002 | 0.000 | \*\* |  | 0.9 | 0.5 | -0.1 | \*\* |  | 2013 | 2018 | -0.2 | -0.3 | -0.1 |
| Kyrgyzstan | ECA | 2005-6 | 2014 |  | 75.3 | 82.1 | 0.27 | \*\*\* |  | 0.036 | 0.013 | -0.003 | \*\*\* |  | 9.4 | 3.4 | -0.7 | \*\*\* |  | 2014 | 2019 | 2.7 | 1.8 | -0.9 |
| Macedonia | ECA | 2005-6 | 2011 |  | 82.8 | 90.0 | 0.72 | \*\*\* |  | 0.031 | 0.008 | -0.004 | \*\*\* |  | 7.8 | 2.0 | -1.0 | \*\*\* |  | 2013 | 2018 | 4.9 | 7.0 | 2.1 |
| Moldova | ECA | 2005 | 2012 |  | 88.1 | 89.6 | 0.15 | \*\*\* |  | 0.006 | 0.003 | 0.000 | \*\* |  | 1.5 | 0.9 | -0.1 | \*\*\* |  | 2013 | 2018 | 0.3 | 1.9 | 1.6 |
| Mongolia | ECA | 2010 | 2013 |  | 66.6 | 70.8 | 0.10 | \* |  | 0.083 | 0.056 | -0.009 | \*\*\* |  | 20.2 | 13.5 | -2.2 | \*\*\* |  | 2011 | 2018 | 0.8 | 1.1 | 0.3 |
| Montenegro | ECA | 2005-6 | 2013 |  | 88.5 | 89.4 | 0.14 | \*\* |  | 0.015 | 0.011 | 0.000 |  |  | 3.5 | 3.0 | -0.1 |  |  | 2012 | 2016 | 3.2 | 6.3 | 3.2 |
| Serbia | ECA | 2010 | 2014 |  | 91.3 | 92.0 | 0.11 | \*\*\* |  | 0.001 | 0.001 | 0.000 |  |  | 0.2 | 0.4 | 0.0 |  |  | 2013 | 2017 | 1.5 | 3.9 | 2.4 |
| Tajikistan | ECA | 2012 | 2017 |  | 71.0 | 75.7 | 0.28 | \*\*\* |  | 0.049 | 0.029 | -0.004 | \*\*\* |  | 12.2 | 7.4 | -1.0 | \*\*\* |  |  |  |  |  |  |
| Turkmenistan | ECA | 2006 | 2015-16 |  | 81.7 | 88.4 | 0.29 | \*\*\* |  | 0.013 | 0.004 | -0.001 | \*\*\* |  | 3.4 | 1.0 | -0.2 | \*\*\* |  |  |  |  |  |  |
| Ukraine | ECA | 2007 | 2012 |  | 94.1 | 97.1 | 0.38 | \*\*\* |  | 0.001 | 0.001 | 0.000 |  |  | 0.4 | 0.2 | 0.0 |  |  | 2014 | 2019 | 2.8 | 1.7 | -1.1 |
| Belize | LAC | 2011 | 2015-16 |  | 79.9 | 82.3 | 0.29 | \*\*\* |  | 0.030 | 0.020 | -0.002 | \*\* |  | 7.4 | 4.9 | -0.5 | \*\* |  |  |  |  |  |  |
| Bolivia | LAC | 2003 | 2008 |  | 54.2 | 65.0 | 0.39 | \*\*\* |  | 0.168 | 0.096 | -0.014 | \*\*\* |  | 34.3 | 20.8 | -2.7 | \*\*\* |  | 2014 | 2019 | -0.9 | 3.1 | 4.0 |
| Colombia | LAC | 2010 | 2015-16 |  | 82.5 | 84.8 | 0.22 | \*\*\* |  | 0.024 | 0.020 | -0.001 | \*\*\* |  | 6.0 | 4.8 | -0.2 | \*\*\* |  | 2014 | 2019 | -0.5 | 0.4 | 0.8 |
| Dominican Republic | LAC | 2007 | 2014 |  | 78.1 | 86.1 | 0.42 | \*\*\* |  | 0.032 | 0.015 | -0.002 | \*\*\* |  | 7.8 | 3.9 | -0.6 | \*\*\* |  | 2011 | 2016 | 4.3 | 5.2 | 0.9 |
| Guyana | LAC | 2009 | 2014 |  | 81.6 | 85.9 | 0.42 | \*\*\* |  | 0.023 | 0.014 | -0.002 | \* |  | 5.5 | 3.3 | -0.4 | \*\* |  |  |  |  |  |  |
| Haiti | LAC | 2012 | 2016-17 |  | 48.3 | 52.2 | 0.11 | \*\* |  | 0.237 | 0.192 | -0.010 | \*\*\* |  | 48.4 | 39.9 | -1.9 | \*\*\* |  |  |  |  |  |  |
| Honduras | LAC | 2005-6 | 2011-12 |  | 50.7 | 64.1 | 0.73 | \*\*\* |  | 0.192 | 0.093 | -0.016 | \*\*\* |  | 37.9 | 20.0 | -3.0 | \*\*\* |  | 2014 | 2019 | 0.7 | 1.6 | 0.9 |
| Jamaica | LAC | 2010 | 2014 |  | 81.2 | 82.4 | 0.18 | \* |  | 0.021 | 0.018 | -0.001 |  |  | 5.3 | 4.7 | -0.2 |  |  |  |  |  |  |  |
| Mexico | LAC | 2012 | 2016 |  | 82.9 | 84.1 | 0.17 | \*\*\* |  | 0.030 | 0.025 | -0.001 | \*\* |  | 7.5 | 6.4 | -0.3 | \* |  |  |  |  |  |  |
| Nicaragua | LAC | 2001 | 2011-12 |  | 46.8 | 68.9 | 0.78 | \*\*\* |  | 0.221 | 0.074 | -0.014 | \*\*\* |  | 41.7 | 16.5 | -2.4 | \*\*\* |  |  |  |  |  |  |
| Peru | LAC | 2012 | 2018 |  | 73.2 | 78.9 | 0.41 | \*\*\* |  | 0.053 | 0.029 | -0.004 | \*\*\* |  | 12.7 | 7.4 | -0.9 | \*\*\* |  | 2014 | 2019 | 1.4 | 2.7 | 1.3 |
| Suriname | LAC | 2006 | 2010 |  | 76.9 | 81.9 | 0.75 | \*\*\* |  | 0.059 | 0.037 | -0.006 | \*\*\* |  | 12.8 | 8.4 | -1.1 | \*\*\* |  |  |  |  |  |  |
| Trinidad and Tobago | LAC | 2006 | 2011 |  | 90.0 | 89.6 | -0.06 |  |  | 0.021 | 0.018 | -0.001 |  |  | 5.7 | 5.0 | -0.1 |  |  |  |  |  |  |  |
| Afghanistan | SAS | 2010-11 | 2015-16 |  | 29.3 | 35.2 | -0.27 | \*\*\* |  | 0.439 | 0.352 | -0.017 | \*\*\* |  | 76.0 | 64.1 | -2.4 | \*\*\* |  |  |  |  |  |  |
| Bangladesh | SAS | 2014 | 2019 |  | 54.9 | 64.9 | 0.66 | \*\*\* |  | 0.175 | 0.101 | -0.015 | \*\*\* |  | 37.6 | 24.1 | -2.7 | \*\*\* |  |  |  |  |  |  |
| India | SAS | 2005-6 | 2015-16 |  | 43.0 | 61.5 | 0.47 | \*\*\* |  | 0.283 | 0.123 | -0.016 | \*\*\* |  | 55.1 | 27.9 | -2.7 | \*\*\* |  |  |  |  |  |  |
| Nepal | SAS | 2011 | 2016 |  | 51.2 | 60.7 | 0.68 | \*\*\* |  | 0.207 | 0.130 | -0.015 | \*\*\* |  | 43.3 | 29.9 | -2.7 | \*\*\* |  |  |  |  |  |  |
| Pakistan | SAS | 2012-13 | 2017-18 |  | 46.0 | 49.7 | 0.05 |  |  | 0.233 | 0.198 | -0.007 | \*\* |  | 44.5 | 38.3 | -1.2 | \*\* |  | 2013 | 2018 | 1.5 | 1.1 | -0.3 |
| Benin | SSA | 2014 | 2017-18 |  | 36.7 | 35.5 | 0.01 |  |  | 0.346 | 0.362 | 0.005 |  |  | 63.2 | 66.0 | 0.8 | \* |  |  |  |  |  |  |
| Burkina Faso | SSA | 2006 | 2010 |  | 15.2 | 17.8 | -0.16 | \*\*\* |  | 0.607 | 0.574 | -0.008 | \* |  | 88.7 | 86.3 | -0.6 |  |  |  |  |  |  |  |
| Burundi | SSA | 2010 | 2016-17 |  | 31.4 | 34.7 | -0.13 | \*\*\* |  | 0.464 | 0.409 | -0.008 | \*\*\* |  | 82.3 | 75.1 | -1.1 | \*\*\* |  |  |  |  |  |  |
| Cameroon | SSA | 2011 | 2014 |  | 42.4 | 44.1 | 0.08 |  |  | 0.258 | 0.243 | -0.005 |  |  | 47.7 | 45.5 | -0.7 |  |  |  |  |  |  |  |
| Central African Republic | SSA | 2000 | 2010 |  | 20.2 | 26.8 | -0.09 | \*\*\* |  | 0.574 | 0.482 | -0.009 | \*\*\* |  | 89.6 | 81.5 | -0.8 | \*\*\* |  |  |  |  |  |  |
| Chad | SSA | 2010 | 2014-15 |  | 17.3 | 19.7 | 0.09 | \*\* |  | 0.600 | 0.578 | -0.005 | \*\* |  | 90.0 | 89.4 | -0.1 |  |  |  |  |  |  |  |
| Congo, DR | SSA | 2007 | 2013-14 |  | 31.7 | 37.4 | 0.27 | \*\*\* |  | 0.439 | 0.388 | -0.008 | \*\*\* |  | 77.6 | 73.7 | -0.6 | \* |  |  |  |  |  |  |
| Côte d’Ivoire | SSA | 2011-12 | 2016 |  | 40.4 | 46.7 | -0.14 | \*\* |  | 0.310 | 0.236 | -0.017 | \*\*\* |  | 58.9 | 46.1 | -2.8 | \*\*\* |  |  |  |  |  |  |
| Eswatini | SSA | 2010 | 2014 |  | 60.4 | 67.1 | 0.42 | \*\*\* |  | 0.130 | 0.081 | -0.012 | \*\*\* |  | 29.3 | 19.2 | -2.5 | \*\*\* |  |  |  |  |  |  |
| Ethiopia | SSA | 2011 | 2016 |  | 24.4 | 28.4 | -0.11 | \*\*\* |  | 0.545 | 0.489 | -0.011 | \*\*\* |  | 88.4 | 83.5 | -1.0 | \*\*\* |  |  |  |  |  |  |
| Gabon | SSA | 2000 | 2012 |  | 57.7 | 69.5 | 0.35 | \*\*\* |  | 0.145 | 0.069 | -0.006 | \*\*\* |  | 30.9 | 15.5 | -1.3 | \*\*\* |  |  |  |  |  |  |
| Gambia | SSA | 2005-6 | 2013 |  | 32.1 | 43.4 | 0.36 | \*\*\* |  | 0.387 | 0.281 | -0.014 | \*\*\* |  | 68.0 | 54.7 | -1.8 | \*\*\* |  |  |  |  |  |  |
| Ghana | SSA | 2011 | 2014 |  | 56.6 | 61.9 | 0.85 | \*\*\* |  | 0.149 | 0.116 | -0.011 | \*\*\* |  | 31.1 | 26.2 | -1.7 | \*\*\* |  | 2012 | 2016 | 1.3 | -0.2 | -1.5 |
| Guinea | SSA | 2012 | 2018 |  | 28.8 | 34.0 | 0.04 |  |  | 0.433 | 0.373 | -0.010 | \*\*\* |  | 72.8 | 66.3 | -1.1 | \*\*\* |  |  |  |  |  |  |
| Kenya | SSA | 2008-9 | 2014 |  | 49.0 | 54.6 | 0.23 | \*\*\* |  | 0.247 | 0.179 | -0.012 | \*\*\* |  | 52.2 | 38.9 | -2.4 | \*\*\* |  |  |  |  |  |  |
| Lesotho | SSA | 2009 | 2014 |  | 51.1 | 57.7 | 0.12 | \*\*\* |  | 0.229 | 0.158 | -0.014 | \*\*\* |  | 49.8 | 35.9 | -2.8 | \*\*\* |  |  |  |  |  |  |
| Liberia | SSA | 2007 | 2013 |  | 30.7 | 41.0 | 0.00 |  |  | 0.464 | 0.328 | -0.023 | \*\*\* |  | 81.6 | 63.9 | -3.0 | \*\*\* |  |  |  |  |  |  |
| Madagascar | SSA | 2008-9 | 2018 |  | 31.9 | 35.5 | -0.12 | \*\*\* |  | 0.433 | 0.372 | -0.006 | \*\*\* |  | 75.7 | 67.4 | -0.9 | \*\*\* |  |  |  |  |  |  |
| Malawi | SSA | 2010 | 2015-16 |  | 42.1 | 49.5 | 0.16 | \*\*\* |  | 0.339 | 0.252 | -0.016 | \*\*\* |  | 68.1 | 54.2 | -2.5 | \*\*\* |  | 2010 | 2016 | 1.6 | 3.1 | 1.5 |
| Mali | SSA | 2006 | 2015 |  | 27.1 | 32.0 | -0.20 | \*\*\* |  | 0.501 | 0.417 | -0.009 | \*\*\* |  | 83.7 | 73.0 | -1.2 | \*\*\* |  |  |  |  |  |  |
| Mauritania | SSA | 2011 | 2015 |  | 34.5 | 44.6 | 0.48 | \*\*\* |  | 0.357 | 0.260 | -0.024 | \*\*\* |  | 63.0 | 50.5 | -3.1 | \*\*\* |  |  |  |  |  |  |
| Mozambique | SSA | 2003 | 2011 |  | 25.4 | 33.3 | -0.21 | \*\*\* |  | 0.516 | 0.401 | -0.014 | \*\*\* |  | 84.3 | 71.2 | -1.6 | \*\*\* |  |  |  |  |  |  |
| Namibia | SSA | 2006-7 | 2013 |  | 51.6 | 57.1 | 0.21 | \*\*\* |  | 0.205 | 0.159 | -0.007 | \*\*\* |  | 43.0 | 35.4 | -1.2 | \*\*\* |  |  |  |  |  |  |
| Niger | SSA | 2006 | 2012 |  | 13.6 | 19.7 | -0.13 | \*\*\* |  | 0.668 | 0.594 | -0.012 | \*\*\* |  | 92.9 | 89.9 | -0.5 | \*\*\* |  |  |  |  |  |  |
| Nigeria | SSA | 2013 | 2018 |  | 38.8 | 42.1 | 0.13 | \*\*\* |  | 0.287 | 0.254 | -0.007 | \*\*\* |  | 51.3 | 46.4 | -1.0 | \*\*\* |  |  |  |  |  |  |
| Republic of Congo | SSA | 2005 | 2014-15 |  | 47.5 | 61.7 | 0.13 | \*\*\* |  | 0.258 | 0.114 | -0.015 | \*\*\* |  | 53.8 | 24.7 | -3.1 | \*\*\* |  |  |  |  |  |  |
| Rwanda | SSA | 2010 | 2014-15 |  | 40.7 | 48.4 | 0.16 | \*\*\* |  | 0.357 | 0.259 | -0.022 | \*\*\* |  | 70.2 | 54.4 | -3.5 | \*\*\* |  | 2013 | 2016 | -0.1 | 0.3 | 0.5 |
| São Tomé and Príncipe | SSA | 2008-9 | 2014 |  | 54.7 | 66.1 | 0.46 | \*\*\* |  | 0.185 | 0.092 | -0.017 | \*\*\* |  | 40.7 | 22.1 | -3.4 | \*\*\* |  |  |  |  |  |  |
| Senegal | SSA | 2005 | 2017 |  | 30.2 | 41.3 | 0.29 | \*\*\* |  | 0.382 | 0.284 | -0.008 | \*\*\* |  | 64.3 | 52.5 | -1.0 | \*\*\* |  |  |  |  |  |  |
| Sierra Leone | SSA | 2013 | 2017 |  | 33.8 | 42.2 | -0.03 |  |  | 0.409 | 0.300 | -0.027 | \*\*\* |  | 74.1 | 58.3 | -3.9 | \*\*\* |  | 2011 | 2018 | 2.9 | 2.7 | -0.2 |
| Tanzania | SSA | 2010 | 2015-16 |  | 41.4 | 44.8 | -0.15 | \*\*\* |  | 0.342 | 0.285 | -0.011 | \*\*\* |  | 67.8 | 57.1 | -1.9 | \*\*\* |  | 2011 | 2018 | 0.9 | -0.2 | -1.1 |
| Togo | SSA | 2010 | 2013-14 |  | 38.0 | 39.1 | -0.01 |  |  | 0.316 | 0.301 | -0.004 |  |  | 57.5 | 55.3 | -0.6 |  |  |  |  |  |  |  |
| Uganda | SSA | 2011 | 2016 |  | 40.1 | 45.5 | -0.02 |  |  | 0.349 | 0.281 | -0.014 | \*\*\* |  | 67.7 | 57.2 | -2.1 | \*\*\* |  | 2012 | 2016 | -1.0 | -2.2 | -1.2 |
| Zambia | SSA | 2007 | 2013-14 |  | 38.6 | 45.9 | 0.26 | \*\*\* |  | 0.349 | 0.270 | -0.012 | \*\*\* |  | 65.9 | 54.6 | -1.7 | \*\*\* |  |  |  |  |  |  |
| Zimbabwe | SSA | 2010-11 | 2015 |  | 56.4 | 59.1 | 0.12 | \*\*\* |  | 0.176 | 0.147 | -0.006 | \*\*\* |  | 40.1 | 34.0 | -1.4 | \*\*\* |  | 2011 | 2017 | -3.5 | -3.7 | -0.3 |
| Source: Authors’ own computations for , and . MPI and H were obtained from [https://ophi.org.uk/multidimensional-poverty-index/data-tables-do-files](https://ophi.org.uk/multidimensional-poverty-index/data-tables-do-files/) and the shared prosperity figures were obtained from <https://www.worldbank.org/en/topic/poverty/brief/global-database-of-shared-prosperity>.  Notes: and : Well-being levels in periods 1 and 2; MPI1 and MPI2: MPI values for periods 1 and 2; H1 and H2: MPI headcount ratios for periods 1 and 2; : Inclusivity premium; MPI: Annualized absolute change in MPI; H: Annualized absolute change in H in percentage points; G: Annualized growth in the average income; G40: Annualized growth in the average income of the bottom 40 percent; SPP: Shared prosperity premium (G40 - G). | | | | | | | | | | | | | | | | | | | | | | | | | |

Table A. Robustness of changes in well-being and of inclusivity premium for 80 countries

|  |  |  |  | Well-being () | | | | | |  | Well-being () | | | | | |  | Well-being () | | | | | |  | Robust | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Region | Year1 | Year2 |  |  |  | |  | |  |  |  |  | |  | |  |  |  |  | |  | |  | Δ |  |
| Egypt | ARS | 2008 | 2014 | 70.7 | 76.0 | 0.88 | \*\*\* | 0.56 | \*\*\* |  | 77.8 | 82.0 | 0.69 | \*\*\* | 0.37 | \*\*\* |  | 84.6 | 87.8 | 0.53 | \*\*\* | 0.21 | \*\*\* |  | Yes | Yes |
| Iraq | ARS | 2011 | 2018 | 64.9 | 71.6 | 0.96 | \*\*\* | 0.52 | \*\*\* |  | 73.8 | 78.2 | 0.63 | \*\*\* | 0.19 | \*\*\* |  | 79.9 | 85.0 | 0.73 | \*\*\* | 0.29 | \*\*\* |  | Yes | Yes |
| Jordan | ARS | 2012 | 2017-18 | 89.2 | 90.9 | 0.30 | \*\*\* | 0.24 | \*\*\* |  | 94.6 | 95.5 | 0.15 | \*\*\* | 0.09 | \*\*\* |  | 96.4 | 97.0 | 0.10 | \*\*\* | 0.04 | \*\*\* |  | Yes | Yes |
| State of Palestine | ARS | 2010 | 2014 | 80.9 | 84.1 | 0.80 | \*\*\* | 0.54 | \*\*\* |  | 87.7 | 89.3 | 0.40 | \*\*\* | 0.14 | \*\*\* |  | 90.4 | 92.1 | 0.43 | \*\*\* | 0.17 | \*\*\* |  | Yes | Yes |
| Sudan | ARS | 2010 | 2014 | 26.7 | 30.1 | 0.84 | \*\*\* | 0.03 |  |  | 37.1 | 41.1 | 1.00 | \*\*\* | 0.19 | \*\*\* |  | 45.8 | 49.9 | 1.01 | \*\*\* | 0.20 | \*\*\* |  | Yes | No |
| Yemen | ARS | 2006 | 2013 | 39.1 | 46.8 | 1.09 | \*\*\* | 0.30 | \*\*\* |  | 51.3 | 58.3 | 1.00 | \*\*\* | 0.21 | \*\*\* |  | 59.7 | 66.6 | 0.98 | \*\*\* | 0.19 | \*\*\* |  | Yes | Yes |
| Cambodia | EAP | 2010 | 2014 | 39.3 | 45.8 | 1.61 | \*\*\* | 0.35 | \*\*\* |  | 49.4 | 55.5 | 1.52 | \*\*\* | 0.26 | \*\*\* |  | 56.6 | 62.4 | 1.46 | \*\*\* | 0.20 | \*\*\* |  | Yes | Yes |
| China | EAP | 2010 | 2014 | 63.7 | 70.3 | 1.66 | \*\*\* | 0.69 | \*\*\* |  | 71.2 | 76.9 | 1.44 | \*\*\* | 0.47 | \*\*\* |  | 76.4 | 81.8 | 1.34 | \*\*\* | 0.37 | \*\*\* |  | Yes | Yes |
| Indonesia | EAP | 2012 | 2017 | 71.8 | 79.3 | 1.49 | \*\*\* | 0.79 | \*\*\* |  | 80.0 | 86.5 | 1.30 | \*\*\* | 0.60 | \*\*\* |  | 84.9 | 90.7 | 1.17 | \*\*\* | 0.47 | \*\*\* |  | Yes | Yes |
| Lao PDR | EAP | 2011-12 | 2017 | 35.2 | 51.1 | 2.89 | \*\*\* | 1.23 | \*\*\* |  | 47.7 | 62.5 | 2.69 | \*\*\* | 1.03 | \*\*\* |  | 56.9 | 70.2 | 2.41 | \*\*\* | 0.75 | \*\*\* |  | Yes | Yes |
| Philippines | EAP | 2013 | 2017 | 67.3 | 71.9 | 1.16 | \*\*\* | 0.59 | \*\*\* |  | 77.0 | 80.3 | 0.83 | \*\*\* | 0.26 | \*\*\* |  | 82.2 | 85.0 | 0.71 | \*\*\* | 0.13 | \*\*\* |  | Yes | Yes |
| Thailand | EAP | 2012 | 2015-16 | 79.0 | 80.6 | 0.45 | \*\*\* | 0.18 | \*\*\* |  | 86.0 | 87.8 | 0.51 | \*\*\* | 0.25 | \*\*\* |  | 90.3 | 91.9 | 0.45 | \*\*\* | 0.18 | \*\*\* |  | Yes | Yes |
| Timor-Leste | EAP | 2009-10 | 2016 | 29.6 | 43.2 | 2.11 | \*\*\* | 0.42 | \*\*\* |  | 38.3 | 52.0 | 2.10 | \*\*\* | 0.41 | \*\*\* |  | 45.0 | 58.1 | 2.00 | \*\*\* | 0.31 | \*\*\* |  | Yes | Yes |
| Vietnam | EAP | 2010-11 | 2014 | 69.2 | 70.4 | 0.36 | \* | 0.07 |  |  | 79.3 | 80.9 | 0.44 | \*\*\* | 0.15 | \*\* |  | 84.5 | 86.2 | 0.49 | \*\*\* | 0.19 | \*\*\* |  | Yes | No |
| Albania | ECA | 2008-9 | 2017-18 | 79.0 | 84.2 | 0.57 | \*\*\* | 0.38 | \*\*\* |  | 85.5 | 89.3 | 0.42 | \*\*\* | 0.23 | \*\*\* |  | 89.1 | 91.9 | 0.32 | \*\*\* | 0.13 | \*\*\* |  | Yes | Yes |
| Armenia | ECA | 2010 | 2015-16 | 86.5 | 89.0 | 0.46 | \*\*\* | 0.37 | \*\*\* |  | 91.4 | 92.7 | 0.23 | \*\*\* | 0.14 | \*\*\* |  | 94.3 | 95.1 | 0.15 | \*\*\* | 0.06 | \*\*\* |  | Yes | Yes |
| Bosnia and Herzegovina | ECA | 2006 | 2011-12 | 77.7 | 84.7 | 1.29 | \*\*\* | 1.12 | \*\*\* |  | 85.6 | 89.6 | 0.73 | \*\*\* | 0.56 | \*\*\* |  | 88.5 | 91.2 | 0.48 | \*\*\* | 0.32 | \*\*\* |  | Yes | Yes |
| Kazakhstan | ECA | 2010-11 | 2015 | 82.0 | 87.0 | 1.11 | \*\*\* | 0.64 | \*\*\* |  | 88.1 | 92.8 | 1.04 | \*\*\* | 0.57 | \*\*\* |  | 91.7 | 95.2 | 0.78 | \*\*\* | 0.31 | \*\*\* |  | Yes | Yes |
| Kyrgyzstan | ECA | 2005-6 | 2014 | 68.4 | 75.5 | 0.85 | \*\*\* | 0.31 | \*\*\* |  | 75.2 | 82.2 | 0.81 | \*\*\* | 0.28 | \*\*\* |  | 79.9 | 86.3 | 0.75 | \*\*\* | 0.22 | \*\*\* |  | Yes | Yes |
| Macedonia | ECA | 2005-6 | 2011 | 73.6 | 85.3 | 2.12 | \*\*\* | 1.53 | \*\*\* |  | 83.5 | 89.9 | 1.16 | \*\*\* | 0.56 | \*\*\* |  | 87.8 | 93.3 | 0.99 | \*\*\* | 0.40 | \*\*\* |  | Yes | Yes |
| Moldova | ECA | 2005 | 2012 | 82.1 | 84.9 | 0.40 | \*\*\* | 0.34 | \*\*\* |  | 88.3 | 89.7 | 0.20 | \*\*\* | 0.14 | \*\*\* |  | 91.8 | 92.5 | 0.10 | \*\*\* | 0.04 | \*\*\* |  | Yes | Yes |
| Mongolia | ECA | 2010 | 2013 | 58.6 | 62.8 | 1.40 | \*\*\* | 0.11 |  |  | 66.7 | 70.9 | 1.38 | \*\*\* | 0.08 |  |  | 71.9 | 76.1 | 1.41 | \*\*\* | 0.12 | \*\*\* |  | Yes | No |
| Montenegro | ECA | 2005-6 | 2013 | 82.9 | 85.1 | 0.29 | \* | 0.31 | \*\* |  | 88.7 | 89.8 | 0.15 | \* | 0.16 | \*\*\* |  | 92.1 | 91.9 | -0.02 |  | -0.01 |  |  | No | No |
| Serbia | ECA | 2010 | 2014 | 87.5 | 88.7 | 0.30 | \*\*\* | 0.24 | \*\*\* |  | 91.1 | 91.7 | 0.14 | \*\* | 0.09 | \*\* |  | 94.1 | 94.5 | 0.10 | \*\* | 0.04 | \*\* |  | Yes | Yes |
| Tajikistan | ECA | 2012 | 2017 | 64.5 | 69.2 | 0.94 | \*\*\* | 0.29 | \*\*\* |  | 70.7 | 75.3 | 0.92 | \*\*\* | 0.27 | \*\*\* |  | 75.8 | 80.4 | 0.93 | \*\*\* | 0.28 | \*\*\* |  | Yes | Yes |
| Turkmenistan | ECA | 2006 | 2015-16 | 75.6 | 81.7 | 0.63 | \*\*\* | 0.22 | \*\*\* |  | 81.6 | 88.7 | 0.74 | \*\*\* | 0.33 | \*\*\* |  | 85.9 | 92.4 | 0.68 | \*\*\* | 0.27 | \*\*\* |  | Yes | Yes |
| Ukraine | ECA | 2007 | 2012 | 89.5 | 94.8 | 1.06 | \*\*\* | 0.84 | \*\*\* |  | 94.7 | 97.4 | 0.55 | \*\*\* | 0.33 | \*\*\* |  | 96.5 | 98.3 | 0.37 | \*\*\* | 0.15 | \*\*\* |  | Yes | Yes |
| Belize | LAC | 2011 | 2015-16 | 71.1 | 74.1 | 0.68 | \*\*\* | 0.45 | \*\* |  | 79.8 | 82.3 | 0.55 | \*\*\* | 0.32 | \*\*\* |  | 85.9 | 87.6 | 0.38 | \*\*\* | 0.15 | \*\*\* |  | Yes | Yes |
| Bolivia | LAC | 2003 | 2008 | 42.6 | 53.3 | 2.14 | \*\*\* | 0.36 | \*\*\* |  | 54.0 | 64.9 | 2.18 | \*\*\* | 0.40 | \*\*\* |  | 62.1 | 73.0 | 2.18 | \*\*\* | 0.40 | \*\*\* |  | Yes | Yes |
| Colombia | LAC | 2010 | 2015-16 | 73.3 | 75.6 | 0.42 | \*\*\* | 0.23 | \*\*\* |  | 82.7 | 85.3 | 0.47 | \*\*\* | 0.27 | \*\*\* |  | 88.4 | 90.2 | 0.32 | \*\*\* | 0.13 | \*\*\* |  | Yes | Yes |
| Dominican Republic | LAC | 2007 | 2014 | 69.5 | 78.5 | 1.30 | \*\*\* | 0.57 | \*\*\* |  | 78.3 | 86.4 | 1.15 | \*\*\* | 0.42 | \*\*\* |  | 83.7 | 90.9 | 1.04 | \*\*\* | 0.31 | \*\*\* |  | Yes | Yes |
| Guyana | LAC | 2009 | 2014 | 72.8 | 77.8 | 1.00 | \*\*\* | 0.57 | \*\*\* |  | 81.8 | 86.2 | 0.88 | \*\*\* | 0.45 | \*\*\* |  | 87.2 | 90.8 | 0.72 | \*\*\* | 0.29 | \*\*\* |  | Yes | Yes |
| Haiti | LAC | 2012 | 2016-17 | 38.7 | 41.7 | 0.68 | \*\*\* | -0.09 |  |  | 47.8 | 51.9 | 0.92 | \*\*\* | 0.16 | \*\*\* |  | 55.3 | 59.5 | 0.94 | \*\*\* | 0.17 | \*\*\* |  | Yes | No |
| Honduras | LAC | 2005-6 | 2011-12 | 39.1 | 53.5 | 2.39 | \*\*\* | 0.89 | \*\*\* |  | 50.5 | 64.1 | 2.27 | \*\*\* | 0.78 | \*\*\* |  | 58.8 | 71.1 | 2.05 | \*\*\* | 0.55 | \*\*\* |  | Yes | Yes |
| Jamaica | LAC | 2010 | 2014 | 74.2 | 75.8 | 0.39 |  | 0.27 |  |  | 81.2 | 82.5 | 0.32 | \*\* | 0.21 | \*\* |  | 85.7 | 86.5 | 0.21 | \*\* | 0.09 | \*\* |  | No | No |
| Mexico | LAC | 2012 | 2016 | 73.3 | 75.2 | 0.47 | \*\*\* | 0.35 | \*\*\* |  | 83.3 | 84.4 | 0.28 | \*\*\* | 0.16 | \*\*\* |  | 88.8 | 89.6 | 0.20 | \*\*\* | 0.08 | \*\*\* |  | Yes | Yes |
| Nicaragua | LAC | 2001 | 2011-12 | 33.6 | 57.8 | 2.30 | \*\*\* | 0.98 | \*\*\* |  | 46.2 | 68.9 | 2.16 | \*\*\* | 0.83 | \*\*\* |  | 56.3 | 76.3 | 1.91 | \*\*\* | 0.58 | \*\*\* |  | Yes | Yes |
| Peru | LAC | 2012 | 2018 | 63.9 | 71.1 | 1.20 | \*\*\* | 0.66 | \*\*\* |  | 73.2 | 78.8 | 0.93 | \*\*\* | 0.38 | \*\*\* |  | 79.3 | 84.3 | 0.82 | \*\*\* | 0.27 | \*\*\* |  | Yes | Yes |
| Suriname | LAC | 2006 | 2010 | 62.8 | 70.5 | 1.93 | \*\*\* | 1.41 | \*\*\* |  | 77.8 | 82.7 | 1.23 | \*\*\* | 0.71 | \*\*\* |  | 85.0 | 88.5 | 0.86 | \*\*\* | 0.34 | \*\*\* |  | Yes | Yes |
| Trinidad and Tobago | LAC | 2006 | 2011 | 83.3 | 82.3 | -0.19 |  | -0.16 |  |  | 90.6 | 90.3 | -0.06 |  | -0.04 |  |  | 93.8 | 93.5 | -0.04 |  | -0.02 |  |  | No | No |
| Afghanistan | SAS | 2010-11 | 2015-16 | 19.0 | 23.1 | 0.81 | \*\*\* | -0.64 | \*\*\* |  | 29.0 | 35.0 | 1.20 | \*\*\* | -0.24 | \*\*\* |  | 36.6 | 43.6 | 1.40 | \*\*\* | -0.05 |  |  | Yes | No |
| Bangladesh | SAS | 2014 | 2019 | 45.1 | 56.2 | 2.22 | \*\*\* | 0.89 | \*\*\* |  | 54.6 | 64.6 | 2.00 | \*\*\* | 0.67 | \*\*\* |  | 61.7 | 70.9 | 1.84 | \*\*\* | 0.50 | \*\*\* |  | Yes | Yes |
| India | SAS | 2005-6 | 2015-16 | 32.0 | 51.9 | 1.99 | \*\*\* | 0.60 | \*\*\* |  | 42.8 | 61.4 | 1.87 | \*\*\* | 0.48 | \*\*\* |  | 50.6 | 68.1 | 1.75 | \*\*\* | 0.36 | \*\*\* |  | Yes | Yes |
| Nepal | SAS | 2011 | 2016 | 40.4 | 51.6 | 2.23 | \*\*\* | 1.00 | \*\*\* |  | 51.0 | 60.5 | 1.90 | \*\*\* | 0.67 | \*\*\* |  | 58.6 | 67.1 | 1.70 | \*\*\* | 0.47 | \*\*\* |  | Yes | Yes |
| Pakistan | SAS | 2012-13 | 2017-18 | 33.5 | 36.6 | 0.62 | \*\*\* | -0.08 |  |  | 45.6 | 49.2 | 0.73 | \*\*\* | 0.03 |  |  | 54.9 | 59.2 | 0.86 | \*\*\* | 0.16 | \*\*\* |  | Yes | No |
| Benin | SSA | 2014 | 2017-18 | 26.5 | 25.5 | -0.29 | \*\* | 0.05 |  |  | 36.2 | 35.0 | -0.33 | \*\*\* | 0.01 |  |  | 44.1 | 42.9 | -0.35 | \*\*\* | 0.00 |  |  | Yes | No |
| Burkina Faso | SSA | 2006 | 2010 | 6.9 | 9.5 | 0.65 | \*\*\* | -0.16 | \*\* |  | 14.6 | 17.2 | 0.64 | \*\*\* | -0.17 | \*\*\* |  | 21.4 | 24.0 | 0.66 | \*\*\* | -0.15 | \*\*\* |  | Yes | Yes |
| Burundi | SSA | 2010 | 2016-17 | 23.5 | 26.0 | 0.38 | \*\*\* | -0.25 | \*\*\* |  | 30.8 | 34.3 | 0.54 | \*\*\* | -0.10 | \*\*\* |  | 37.4 | 41.0 | 0.56 | \*\*\* | -0.08 | \*\*\* |  | Yes | Yes |
| Cameroon | SSA | 2011 | 2014 | 29.6 | 31.4 | 0.60 | \*\* | 0.09 |  |  | 41.9 | 43.7 | 0.60 | \*\*\* | 0.10 |  |  | 51.5 | 53.2 | 0.56 | \*\*\* | 0.06 |  |  | Yes | No |
| Central African Republic | SSA | 2000 | 2010 | 11.8 | 17.4 | 0.55 | \*\*\* | -0.21 | \*\*\* |  | 19.8 | 26.4 | 0.66 | \*\*\* | -0.10 | \*\*\* |  | 26.2 | 33.8 | 0.76 | \*\*\* | 0.00 |  |  | Yes | No |
| Chad | SSA | 2010 | 2014-15 | 9.5 | 11.6 | 0.47 | \*\*\* | 0.03 |  |  | 16.8 | 19.4 | 0.57 | \*\*\* | 0.13 | \*\*\* |  | 23.2 | 25.5 | 0.51 | \*\*\* | 0.07 | \*\* |  | Yes | No |
| Congo, DR | SSA | 2007 | 2013-14 | 24.2 | 28.4 | 0.65 | \*\*\* | 0.03 |  |  | 30.9 | 37.5 | 1.02 | \*\*\* | 0.40 | \*\*\* |  | 37.7 | 43.4 | 0.87 | \*\*\* | 0.25 | \*\*\* |  | Yes | No |
| Côte d’Ivoire | SSA | 2011-12 | 2016 | 30.0 | 35.8 | 1.28 | \*\*\* | -0.25 | \*\* |  | 40.1 | 46.1 | 1.32 | \*\*\* | -0.21 | \*\*\* |  | 47.8 | 54.7 | 1.54 | \*\*\* | 0.01 |  |  | Yes | No |
| Eswatini | SSA | 2010 | 2014 | 50.9 | 58.3 | 1.84 | \*\*\* | 0.58 | \*\*\* |  | 60.2 | 66.9 | 1.66 | \*\*\* | 0.40 | \*\*\* |  | 66.8 | 73.2 | 1.59 | \*\*\* | 0.33 | \*\*\* |  | Yes | Yes |
| Ethiopia | SSA | 2011 | 2016 | 16.0 | 20.7 | 0.94 | \*\*\* | 0.02 |  |  | 24.5 | 27.8 | 0.67 | \*\*\* | -0.25 | \*\*\* |  | 29.8 | 34.3 | 0.91 | \*\*\* | -0.01 |  |  | Yes | No |
| Gabon | SSA | 2000 | 2012 | 46.6 | 59.1 | 1.04 | \*\*\* | 0.41 | \*\*\* |  | 57.5 | 69.4 | 0.99 | \*\*\* | 0.36 | \*\*\* |  | 65.3 | 76.6 | 0.95 | \*\*\* | 0.31 | \*\*\* |  | Yes | Yes |
| Gambia | SSA | 2005-6 | 2013 | 21.3 | 33.4 | 1.61 | \*\*\* | 0.46 | \*\*\* |  | 31.6 | 43.0 | 1.53 | \*\*\* | 0.37 | \*\*\* |  | 40.0 | 50.7 | 1.43 | \*\*\* | 0.28 | \*\*\* |  | Yes | Yes |
| Ghana | SSA | 2011 | 2014 | 45.3 | 52.3 | 2.33 | \*\*\* | 1.43 | \*\*\* |  | 56.6 | 61.8 | 1.75 | \*\*\* | 0.85 | \*\*\* |  | 64.2 | 68.3 | 1.37 | \*\*\* | 0.47 | \*\*\* |  | Yes | Yes |
| Guinea | SSA | 2012 | 2018 | 19.7 | 24.0 | 0.71 | \*\*\* | -0.12 |  |  | 28.2 | 33.7 | 0.91 | \*\*\* | 0.08 | \*\* |  | 35.7 | 41.3 | 0.93 | \*\*\* | 0.10 | \*\*\* |  | Yes | No |
| Kenya | SSA | 2008-9 | 2014 | 40.4 | 45.8 | 0.99 | \*\*\* | 0.20 |  |  | 48.7 | 54.5 | 1.05 | \*\*\* | 0.26 | \*\*\* |  | 55.2 | 60.7 | 0.99 | \*\*\* | 0.20 | \*\*\* |  | Yes | No |
| Lesotho | SSA | 2009 | 2014 | 42.8 | 49.0 | 1.26 | \*\*\* | 0.06 |  |  | 50.8 | 57.6 | 1.35 | \*\*\* | 0.15 | \*\*\* |  | 57.0 | 63.6 | 1.32 | \*\*\* | 0.12 | \*\*\* |  | Yes | No |
| Liberia | SSA | 2007 | 2013 | 22.9 | 31.3 | 1.40 | \*\*\* | -0.33 | \*\*\* |  | 30.1 | 41.1 | 1.83 | \*\*\* | 0.11 | \*\* |  | 36.8 | 47.5 | 1.80 | \*\*\* | 0.07 | \*\* |  | Yes | No |
| Madagascar | SSA | 2008-9 | 2018 | 24.4 | 26.3 | 0.20 | \*\*\* | -0.29 | \*\*\* |  | 31.1 | 35.1 | 0.42 | \*\*\* | -0.08 | \*\*\* |  | 38.0 | 42.2 | 0.44 | \*\*\* | -0.05 | \*\*\* |  | Yes | Yes |
| Malawi | SSA | 2010 | 2015-16 | 33.0 | 41.3 | 1.50 | \*\*\* | 0.32 | \*\*\* |  | 42.3 | 49.4 | 1.29 | \*\*\* | 0.10 | \*\*\* |  | 48.0 | 55.3 | 1.33 | \*\*\* | 0.14 | \*\*\* |  | Yes | Yes |
| Mali | SSA | 2006 | 2015 | 19.4 | 23.2 | 0.42 | \*\*\* | -0.32 | \*\*\* |  | 26.8 | 31.6 | 0.54 | \*\*\* | -0.21 | \*\*\* |  | 32.7 | 38.3 | 0.62 | \*\*\* | -0.12 | \*\*\* |  | Yes | Yes |
| Mauritania | SSA | 2011 | 2015 | 24.5 | 34.1 | 2.40 | \*\*\* | 0.36 | \*\*\* |  | 33.8 | 44.2 | 2.60 | \*\*\* | 0.55 | \*\*\* |  | 42.2 | 52.2 | 2.51 | \*\*\* | 0.47 | \*\*\* |  | Yes | Yes |
| Mozambique | SSA | 2003 | 2011 | 16.9 | 24.6 | 0.95 | \*\*\* | -0.25 | \*\*\* |  | 25.2 | 32.8 | 0.95 | \*\*\* | -0.26 | \*\*\* |  | 31.3 | 39.9 | 1.08 | \*\*\* | -0.13 | \*\*\* |  | Yes | Yes |
| Namibia | SSA | 2006-7 | 2013 | 42.3 | 47.7 | 0.84 | \*\*\* | 0.20 | \*\* |  | 51.2 | 57.0 | 0.88 | \*\*\* | 0.25 | \*\*\* |  | 58.4 | 63.7 | 0.80 | \*\*\* | 0.17 | \*\*\* |  | Yes | Yes |
| Niger | SSA | 2006 | 2012 | 7.5 | 12.9 | 0.90 | \*\*\* | -0.25 | \*\*\* |  | 13.0 | 19.2 | 1.04 | \*\*\* | -0.11 | \*\*\* |  | 18.5 | 24.9 | 1.07 | \*\*\* | -0.08 | \*\*\* |  | Yes | Yes |
| Nigeria | SSA | 2013 | 2018 | 25.8 | 28.6 | 0.57 | \*\*\* | 0.04 |  |  | 38.3 | 41.7 | 0.69 | \*\*\* | 0.16 | \*\*\* |  | 48.2 | 51.6 | 0.69 | \*\*\* | 0.16 | \*\*\* |  | Yes | No |
| Republic of Congo | SSA | 2005 | 2014-15 | 38.7 | 51.1 | 1.30 | \*\*\* | -0.06 |  |  | 47.0 | 61.7 | 1.55 | \*\*\* | 0.19 | \*\*\* |  | 54.1 | 68.7 | 1.55 | \*\*\* | 0.19 | \*\*\* |  | Yes | No |
| Rwanda | SSA | 2010 | 2014-15 | 32.4 | 40.2 | 1.75 | \*\*\* | 0.19 | \*\*\* |  | 40.6 | 48.2 | 1.68 | \*\*\* | 0.13 | \*\*\* |  | 46.5 | 54.3 | 1.74 | \*\*\* | 0.19 | \*\*\* |  | Yes | Yes |
| São Tomé and Príncipe | SSA | 2008-9 | 2014 | 45.6 | 57.4 | 2.14 | \*\*\* | 0.53 | \*\*\* |  | 54.4 | 65.8 | 2.08 | \*\*\* | 0.47 | \*\*\* |  | 61.1 | 72.3 | 2.02 | \*\*\* | 0.41 | \*\*\* |  | Yes | Yes |
| Senegal | SSA | 2005 | 2017 | 18.7 | 30.6 | 0.99 | \*\*\* | 0.35 | \*\*\* |  | 29.4 | 40.5 | 0.93 | \*\*\* | 0.29 | \*\*\* |  | 38.8 | 49.3 | 0.88 | \*\*\* | 0.25 | \*\*\* |  | Yes | Yes |
| Sierra Leone | SSA | 2013 | 2017 | 25.0 | 32.0 | 1.75 | \*\*\* | -0.36 | \*\*\* |  | 33.4 | 41.9 | 2.13 | \*\*\* | 0.02 |  |  | 40.2 | 49.2 | 2.25 | \*\*\* | 0.13 | \*\*\* |  | Yes | No |
| Tanzania | SSA | 2010 | 2015-16 | 32.3 | 35.7 | 0.62 | \*\*\* | -0.15 | \*\* |  | 41.6 | 44.6 | 0.55 | \*\*\* | -0.22 | \*\*\* |  | 47.2 | 51.2 | 0.73 | \*\*\* | -0.05 | \*\* |  | Yes | Yes |
| Togo | SSA | 2010 | 2013-14 | 26.4 | 27.0 | 0.18 |  | -0.14 |  |  | 37.7 | 38.8 | 0.30 | \*\*\* | -0.02 |  |  | 46.2 | 47.6 | 0.40 | \*\*\* | 0.08 | \*\* |  | No | No |
| Uganda | SSA | 2011 | 2016 | 30.7 | 36.3 | 1.12 | \*\*\* | 0.03 |  |  | 40.3 | 45.3 | 1.00 | \*\*\* | -0.09 | \*\* |  | 46.2 | 51.8 | 1.14 | \*\*\* | 0.05 |  |  | Yes | No |
| Zambia | SSA | 2007 | 2013-14 | 29.5 | 36.6 | 1.10 | \*\*\* | 0.23 | \*\*\* |  | 38.3 | 45.6 | 1.13 | \*\*\* | 0.26 | \*\*\* |  | 45.1 | 52.5 | 1.15 | \*\*\* | 0.28 | \*\*\* |  | Yes | Yes |
| Zimbabwe | SSA | 2010-11 | 2015 | 48.4 | 51.0 | 0.58 | \*\*\* | 0.09 |  |  | 56.1 | 59.1 | 0.65 | \*\*\* | 0.16 | \*\*\* |  | 62.1 | 64.6 | 0.56 | \*\*\* | 0.07 | \*\*\* |  | Yes | No |
| Source: Authors’ computations. Statistical significance: \*\*\*: , \*\*: , \*: . Notes: Δ is the absolute change. Weights are = (1, 0, 0, 0, 0), = (1/2, 1/2, 0, 0, 0) and = (1/3, 1/3, 1/3, 0, 0). : Well-being in year 1. : Well-being in period 2. : Annual change in well-being between two periods. : inclusivity premium.  Regions: ARS: Arab States; EAP: East Asia and the Pacific; ECA: Europe and Central Asia; LAC: Latin America and Caribbean; SAS: South Asia; SSA: Sub-Saharan Africa. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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2. For further discussions on the World Bank’s twin goals on ending extreme (monetary) poverty and promoting sharing prosperity, see World Bank (2013) and Cruz et al. (2015). [↑](#footnote-ref-2)
3. Such concerns have also been raised for specific indicators of health and human development by Wagstaff (2005) and Prados de la Escosura (2021), respectively. [↑](#footnote-ref-3)
4. Concerns and proposals for consistent inequality assessment for attainment and shortfalls have been raised by Erreygers (2009), Lambert and Zheng (2011), Lasso de la Vega and Aristondo (2012), Bosmans (2016), and Permanyer, Seth, and Yalonetzky (2022). [↑](#footnote-ref-4)
5. Beegle et al. (2014) argue that simply focusing on the average of the bottom 40 percent may shift focus away from the poorest people in lower middle-income countries, if the poorest people form only a small subset of the 40 percent. [↑](#footnote-ref-5)
6. The decomposition of change in well-being measure presented in Equation (2) is analogous in spirit to the quantile-based rate of increase in welfare measure proposed by Chenery et al (1974: 39). However, the rate of increase in welfare is a relative measure and is incapable of providing an exact decomposition as we do in Equation (2). An equally-weighted average of the quantile-specific growth rates is not equal to the overall growth rate. [↑](#footnote-ref-6)
7. See Fleurbaey (2015) for a comparative philosophical discussion on these two views. For a recent operationalization of the prioritarian principle while measuring poverty with ordinal variables, see Seth and Yalonetzky (2021b). [↑](#footnote-ref-7)
8. We have presented all properties and the main result in the proposition in terms of weak inequalities, but it should be straightforward to establish the results with strict inequalities as and where required (e.g., strong inclusiveness). Moreover, our theoretical presentation in this section is based on attainments, but many indicators in practice may have shortfall representations. Our approach is consistent and is immune to adequacy and shortfall representations. [↑](#footnote-ref-8)
9. Similar concept has been used in the social mobility literature, referred to as progressivity component (Palmisano and Van de Gaer, 2016). [↑](#footnote-ref-9)
10. Our definition of inclusivity premium is conceptually analogous to the ‘progressivity component’ used in the social mobility literature to study egalitarian improvements in social mobility. See Palmasino and Van de Gaer (2016). [↑](#footnote-ref-10)
11. Table A1 summarizes the three dimensions, 10 indicators and their deprivation cutoffs and weights assigned to all indicators. We assume that all recorded attainments and deprivations are meaningful – an assumption that must be verified against each included indicator. For example, the global MPI indicator of solid cooking fuel (wood, charcoal or dung) has a high prevalence among non-poor people in some countries in which there are adequate ventilation and supply systems, so solid fuels are not associated with acute respiratory or eye infections, nor with extensive time spent in fuel collection. Solid cooking fuel still reflects a deprivation if one considers carbon footprint, but its link to poverty may be less direct. Hence indicators used in a full-distribution exercise such as this one must be critically assessed and ‘spurious’ measured deprivations that are not associated with lowered well-being, minimized. [↑](#footnote-ref-11)
12. That is, the sum of the deprivation score and the attainment score is 1. [↑](#footnote-ref-12)
13. The Ukraine study period corresponds to the pre-war period of 2007–12. [↑](#footnote-ref-13)
14. The value of the global MPI for Mauritania was subsequently revised due to a re-coding of Koranic schools to better align it with other countries’ classifications; we use the 2020 value. [↑](#footnote-ref-14)
15. We present an approach to conduct robustness of inclusive well-being changes and inclusivity premiums with respect to the choice of quantile weights in the penultimate section of the paper. [↑](#footnote-ref-15)
16. Table A3 reports the overall income growth rates, income growth rates of the poorest 40 percent of the population, and SPPs. [↑](#footnote-ref-16)
17. Table A3 reports the MPI values and MPI headcount ratios for all 80 countries. [↑](#footnote-ref-17)
18. Comparing the well-being changes for every bottom quantile is conceptually analogous to Generalised Lorenz dominance (Shorrocks, 1983). [↑](#footnote-ref-18)
19. The quantile weights in are analogous to the World Bank’s shared prosperity analysis, where the income growth among the bottom 40 percent of the population is compared to the overall income growth. See Section 5. [↑](#footnote-ref-19)
20. It is interesting to note that a World Bank equivalent definition of inclusivity premium (i.e., at ) would conclude inclusiveness, but our analyses reveal that such inclusiveness conclusion would not be robust either. [↑](#footnote-ref-20)
21. This is also known as Abel's lemma (Guenther and Lee, 1988) or Abel’s formula (Fishburn and Lavalle, 1995: 518). [↑](#footnote-ref-21)