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The Equally Distributed Equivalent Income as the Upper Limit of Poverty Lines

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THE EQUALLY DISTRIBUTED EQUIVALENT INCOME AS THE UPPER LIMIT OF POVERTY LINES

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ABSTRACT

This paper argues that Atkinson's concept of Equally Distributed Equivalent Income (EDEI) is a robust approach for determining the lowest income limit for the non-poor. It argues that using poverty lines higher than EDEI leads to an equity-poverty trap, where eradicating economic inequality results in widespread poverty. It also asserts that mean income is an inappropriate poverty line for inequality-averse societies, as EDEI equates to mean income only in inequality-neutral contexts. The paper challenges various notions of poverty lines based on physiological survival requirements and relative poverty lines set as a fraction of mean or median income, highlighting the arbitrariness in their selection. Using the Luxembourg Income Study (LIS) database, the study confirms that national poverty lines are inherently specific to each country and year. For international comparisons, the paper proposes using the lowest national poverty line (EDEI_{min}) from the analyzed countries as a standard, hence ensuring the avoidance of the equity-poverty trap across countries.

JEL Classification: C10; D30; D60; I32, O15

Keywords: poverty; equally distributed equivalent income; inequality aversion; Atkinson Index; income distribution; utility function

Introduction

The measurement of poverty requires identifying the poor along with the total population and constructing poverty indices using the available information on the poor (Sen, 1976). An individual is identified as poor if his/her income is below a specific threshold z called the *poverty line*.[1] The knowledge of a poverty line is essential in assessing poverty in a population as measured by various poverty indices. Choosing a different poverty line will almost always change these indices (Araar and Duclos, 2006, p. 40).

The microeconomic theory defines the poverty line as a person's income to achieve the predetermined minimum welfare level (utility of income) (Ravallion, 2008). However, implementing such a welfare-based theoretical concept of the poverty line faces a severe problem: the line cannot be identified from demand data alone. Because of that, practitioners draw poverty lines on information from outside economics, e.g., physiological norms of food calorie intake. Relying on such information introduces a great deal of arbitrariness into empirical absolute poverty lines.

The relative poverty lines, typically as a fraction p of the mean or the median of income, do not suffer from such arbitrariness since they do not claim to represent physiological minima (Ravallion, 2010). Nevertheless, a voluntary choice of p introduces another arbitrariness of the relative lines.

The theoretical difficulties with establishing *the lower limit* of poverty lines raise the question: "Would economic theory be more successful in establishing *the lowest income limit* for non-poor persons?" The lowest income might serve as the upper limit poverty lines

The answer to this question is positive. We argue that the *equally distributed equivalent income* (EDEI or μ_ε) is the lowest income of the non-poor. EDEI is the income that, if equally distributed, would give the same level of social welfare as the present income distribution (Atkinson, 1970). If a voluntarily established poverty line z were greater than EDEI, i.e. if $z>\mu_\varepsilon$, it would present a peculiar theoretical situation in which an inequality-reducing policy promised to eradicate economic inequality (an 'egalitarian Paradise') for the price of common poverty! Such a promise will not gain conscious attention in any reasonable society. Also, every utility-consistent economic theory should exclude such a peculiar possibility. Otherwise, ethical assessments of welfare - in Atkinson's theoretical framework- would lose sense.

[1] Donaldson and Weymark (1986) distinguish between a "weak" definition of the poor, which takes the poverty line as the minimum *nonpoor* income, and a "strong" definition in which z is the maximum *poor* income. Here we use *the weak definition*.

Therefore, $z \leq \mu_{\varepsilon}$ is the only acceptable answer to the question concerning the upper limit of poverty lines. People with income less than μ_ε are deemed to be poor. If the inequality $z \leq \mu_{\varepsilon}$ held, an inequality-reducing policy would promise an 'egalitarian Paradise' with no inequality and no poverty.

Our proposal of the poverty line could be applied in practice if we knew the parameter ε of inequality aversion. Kot and Paradowski (2022) present the World atlas of inequality aversion using microdata on household disposable income from the Luxembourg Income Study (LIS) database for 55 countries and 1967-2018. The authors got 391 country-year cases. In the current paper, we update those estimates of EDEI with new observations for upcoming years. Our sample comprises 661 country-year cases for 55 countries.

Our estimates of the poverty lines have turned out country-year specific. Thus, they can directly help design *national* antipoverty policies.

However, global antipoverty policy needs cross-country and over-time comparable poverty lines. This requirement raises the problem of how to use EDEI-based countries' poverty lines on a global scale.

The term 'global' needs a specification. Even if it means "international poverty line", an analyst should specify the countries under consideration. Hereafter, the *global poverty line* will be a shorthand for an international poverty line for a given group of countries.

Using the average, say $\overline{edei}$, of n countries' $EDE_1, \ldots, EDEI_n$ in a given year seems improper since the average might excide some countries' $EDEI_i$, thus violating the inequality $z \leq \mu_{\varepsilon}$. The minimum of countries' EDEIs, namely $EDEI_{min} = \min_i(EDEI_1, \ldots, EDEI_n)$, resolves the problem of the global poverty line for a given year. Similarly, the minimum of countries' EDEIs *over time* can serve as a global country-year poverty line.

The rest of this paper is organised as follows. Section 2 offers a literature review on the limits of poverty lines. In Section 3, we describe the proposed method of constructing a poverty line based on the lowest income of the non-poor. Section 4 presents the statistical data used in this paper. Section 5 offers empirical results. Section 6 concludes.

2. "From the bottom upwards" direction in constructing poverty lines: a literature review

2.1. Arbitrariness in setting poverty lines.

The fundamental question of poverty economics: "Who is poor, who is not?" has been challenging. There is no agreement among the professionals concerning the method of constructing the national and international poverty lines.

The individual poverty line, *z,* is the money an individual needs to achieve the minimum well-being, not to be deemed poor (Ravallion, 2010). If well-being is considered personal functionings, the poverty line is the income below which a person cannot achieve specific normative functionings (Sen 1985). According to Atkinson and Bourguignon (2001), the costs of these functionings concern "survival needs" and the minimum social inclusion costs.

When treating well-being as the utility of individual consumption, the poverty line, z^*, is the cost of attaining the minimum utility level, u*. A person is poor if his/her actual enjoyment of utility is *less than* u*. We follow Donaldson and Weymark's (1986) *weak definition* of the poor. The authors distinguish between a "weak" definition of the poor, which takes the poverty line as the *minimum non-poor income*, and a "strong" definition in which z is the maximum poor income.

Within the microeconomic framework, the poverty line for an i*th* individual, with an attribute a_i when facing price vector p_i, is defined as

$$z_i^* = p_i q(p_i, a_i, u^*) \text{ , for all } i=1,\dots,n \tag{1}$$

where u^* is the minimum utility necessary to escape poverty, $q(p_i,a_i,u_z)$ is the bundle of goods encompassing the basic consumption needs (Ravallion, 2010). In other words, the poverty line, z^*, is the money metric of the minimum utility level, u*.

Kakwani (2010) maintains that the poverty line should be *welfare-consistent*, i.e. u* should be the same for all individuals. Otherwise, the identification of the poor would face horizontal inequity.

Implementing this theoretical concept of a poverty line is problematic since Eq. (1) does not define a single poverty line but many of the lines (Ravallion, 2010). In other words, a unique poverty line cannot be identified from market demands alone (Pollak and Wales, 1979; Pollak, 1991; Browning, 1992).

To overcome the nonidentification problem, practitioners draw the national poverty lines on information from outside economics. We shall refer to such poverty lines as *the pragmatic poverty lines.* As one cannot deduce the supporting information from the economic theory, the pragmatic poverty lines are arbitrary. In other words, the arbitrariness of poverty lines has exchanged their nonidentification.

2.2. Setting a poverty line "from the bottom upwards."

A usual way of constructing a pragmatic poverty line begins with establishing food components which satisfy some "objective" physiological requirements. Some non-food components complement the resulting food poverty line. We shall refer to this as constructing a poverty line "from the bottom upwards."

Estimating the food poverty line is based on the *costs of food calorie intake* or the *costs of basic needs*. The former costs correspond to the actual average consumption expenditure at which a person's typical food energy intake is sufficient to meet the calorie norms. The basic needs costs correspond to the items in the predetermined commodity basket. The composition of this basket is such that the total calories of the items satisfy the physiological standards.

Calculating the costs of the non-food component of a poverty line is more difficult since there are no standards as they are for calorie intake. Ravallion (2010) noted that the methods of setting the non-food component suffer from the same shortfalls encountered in the food calorie intake method.

Fig.1. illustrates how the theory accounted for the costs of the non-food component of a poverty line.

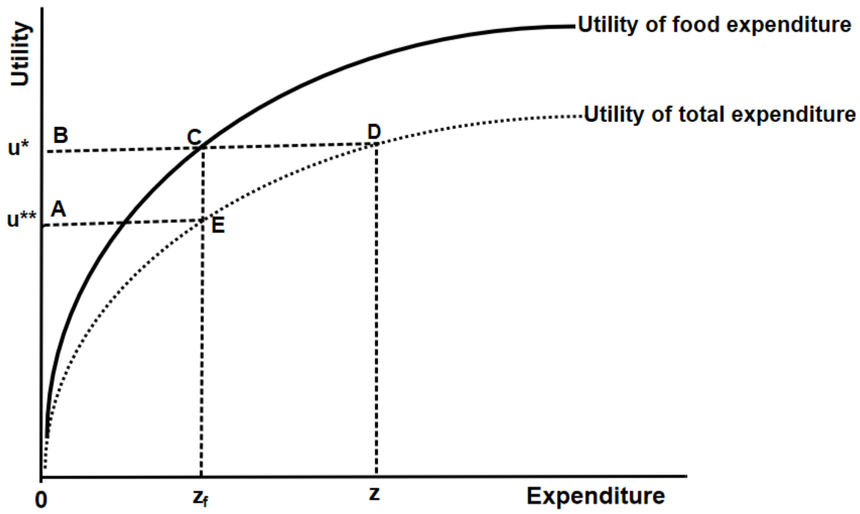

Fig.1. The poverty lines: for food (z_f), total (z) and non-food (z-z_f).
Source: own elaboration based on Kakwani and Son (2022, p. 24).

In Fig.1, two curves display utility functions yielded by food and total expenditures at the food price vector p_i. These functions correspond to expenditure functions. For the calculated *food poverty line* z_f, which satisfies caloric requirements, point C depicts society's *minimum standard of living* u^*. Applying this standard u^* to the utility function of total expenditure (point

D) gives the total poverty line z. The non-food poverty line will be a surplus of total expenditure over food expenditure, i.e. z-z_f, without specifying which non-food items are included in this expenditure.

Kakwani and Son (2022, p.147) determine the non-food poverty line by choosing the households whose *food expenditure* equals the food poverty line. Then, the non-food poverty line will be a surplus of total expenditure over food expenditure.

Ravallion (2010) propose calculating the non-food poverty line by households' non-food expenditure at which *total expenditure* is equal to the food poverty line z_f (point E in Fig. 1). However, this point corresponds to utility level u^{**}, always less than u^*. Kakwani & Son (2022, p. 24) note, "Ravallion's proposed poverty line will not meet society's minimum living standard."

Another problem concerns establishing the *national poverty line*. The question is which individual poverty line (1), or a group of such lines, could serve as a national poverty line. Ravallion (2010) calls this problem *the choice of the reference group (frame).*

In practice, the choice of the reference group is arbitrary. For instance, Kakwani and Son (2022, p. 152) set a national poverty line for Pakistan by averaging individual poverty lines of 30% of households with the lowest calorie costs. The authors consider this reference group reasonable since " (…) around 30% of the population in Pakistan is perceived as poor."

Comparing national poverty lines over time requires proper updating. Such updating is more complex than adjusting the poverty line by consumer price indices. For a broader explanation, see, among others, Kakwani and Son (2022, pp. 149-150).

Establishing a global poverty line that could be comparable across countries is another challenging issue. Allen (2017) maintains that preferences, income and prices determine people's behaviour in rich countries, whereas in poor countries, survival is the issue, and survival requirements take precedence. The author adds, "The poverty line represents the cost of meeting basic needs, not a level of satisfaction, and should be set accordingly." Analysts search for absolute standards independent of country-specific standards to meet this requirement.

According to Ravallion (2010), the absolute food standard is the physiological minimum for human survival, nutritional requirements for good health and normal activity levels.[2] Establishing non-food components needed for survival is more difficult because of the lack of

[2] By contrast, relative poverty lines are set at a constant proportion of current mean income or consumption (Ravallion, 2010).

absolute standards as they are for food. Allen (2013) proposes some standards in his barebones basket.

The *subsistence poverty line* comprises the costs of survival. This line is a reference point in many income, inequality and growth analyses (see, e.g. Pritchett, 1997; Milanovic et al., 2007).

Establishing the subsistence poverty line is a challenging task. Lindgren (2015) focuses on *the physical minimum requirements* (FMR), a relatively easy quantifiable part of the subsistence line. FMR is the consumption needed for physical survival. The most basic requirements for physical survival are sufficient quantities of water and nutrition and the ability to keep a reasonable temperature. Lindgren maintains that FMR represents the lowest possible level of other poverty lines. The author hopes that "The variation of the physical minimum can shed light on the variation of the subsistence line, even though the latter is likely to be significantly higher than the physical minimum." In other words, Lindgren is guessing the unknown upper limit of the subsistence line "from the bottom", notably from the FMR poverty line. Lindgren (2015) is aware of this fact when saying that FMR is "the hard floor upon which the subsistence lines stand."

However, it is challenging to recognise FMR as a poverty line. FMR determines *the limit of human survival.* According to the *weak definition* of the poverty line that we follow in this paper, **life is impossible** below such a poverty line (Lindgren, 2015). A poverty line should distinguish between the poor and the non-poor, not between alive and dead people. FMR describes ***the absolute zero*** of any poverty measurements rather than a poverty line.[3]

Following Davidson and Weymark's (1986) strong definition of the poverty line, in which FMR was the maximum income of the poor, would be an ostensible solution. Note that if FMR is the poverty line of this kind, the headcount ratio will be equal to

$$P(X \leq FMR)=P(X < FMR)+P(X=FMR)=P(X = FMR) \qquad (2)$$

since nobody's income X appears below FMR. However, P(X = FMR) will tend to zero if the sample size *n* increases unboundedly.[4] Thus, the sample size could be responsible for the diversification of poverty incidence.

The question is, what else should a subsistence poverty line include besides FMR? This question seems to be still open.

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[3] It resembles the absolute zero temperature -273.15ºC, at which all atoms have been brought to a dead stop relative to each other. Nothing can be cooled to a temperature less than absolute zero.

[4] When *n* tends to infinity, X becomes a continuous random variable for which $P(X=x)=0$. It does not mean that x is *impossible random event* but it is unlikely to occur.

The World Bank has adopted the poverty line based on the pragmatic poverty lines of the poorest countries. The famous standard "$1 a day per person" was the (rounded) average of the six poorest countries' national poverty lines (1985 prices). The updated versions of this standard, namely $1.90 in 2005 and $2.15 a day in 2017 PPP, were based on various collections of the poorest countries' poverty lines. This "statistical" poverty line does not rely on basic needs and a subsistence level.

The World Bank's poverty line is controversial. The national poverty lines of the poorest countries are constructed and reported in different ways. Moreover, some countries report a national line, others report urban and rural lines, and some report regional lines.

Critics are also concerned about funding the poverty line solely on the poorest countries' lines. Pritchett (2006) acknowledges this approach as guaranteeing that anyone with income or expenditures below this line will genuinely be poor. However, "genuine" poor people live in *all countries*. Because of this, Deaton (2010) claims to use all national poverty lines, weighted by the number of the poor, for constructing the global poverty line. Ravallion (2016) questions Deaton's weighting because of preferring large countries over small ones.

3. "From the top downwards" direction in constructing poverty lines.

In the previous Section, we discussed a usual approach to constructing poverty lines, which we called "from the bottom upwards".The costs of subsequent food and non-food components complemented the cost of meeting basic survival needs. The economic theory did not help provide a stopping rule for that "from the bottom upward" procedure of constructing the poverty line.

The theoretical difficulty with establishing where the income of the poor ends raises the question: "Would economic theory be more helpful in establishing *the lowest income threshold* of the non-poor?" The procedure "from the top downwards" will answer this question.

3.1. Some preliminaries

We assume that a decisionmaker or society evaluates welfare in income distribution by the constant inequality aversion function (CRIA) of the form:

$$u(x) = \begin{cases} \frac{x^{1-\varepsilon}}{1-\varepsilon}, for\ \varepsilon \neq 1 \\ lnx, for\ \varepsilon = 1 \end{cases}, x>0, \tag{3}$$

where the parameter ε reflects *inequality aversion* (Atkinson, 1970). In the distributional analysis, CRIA is a preferable parametric utility-of-income function.

CRIA (1) with $\varepsilon<0$ represents an 'inequality-prone' society. When $\varepsilon=0$, $u(x)$ reflects an 'inequality neutral' society. Such a society prefers one income distribution F over another G if and only if under F, the mean income is higher than under G (Lambert, 2001, p. 99). If $\varepsilon>0$, the utility function $u(x)$ represents an 'inequality averse' society.

EDEI, i.e. the equally distributed equivalent income μ_ε, is the solution to the equation $u(\mu_\varepsilon) = E[u(X)]$, namely

$$\mu_\varepsilon = u^{-1}(E[u(X)]) \tag{4}$$

where the expected value $E[u(X)]$ is *the utilitarian social welfare* in income distribution described by the positive valued random variable X.[5] For CRIA (1), EDEI (2) has the form

$$\mu_\varepsilon = \begin{cases} (E[X^{1-\varepsilon}])^{1/(1-\varepsilon)}, for\ \varepsilon \neq 1 \\ \exp\{E[\ln X]\}, \quad for\ \varepsilon = 1 \end{cases} \tag{5}$$

For a given income distribution, μ_ε (5) is determined by ε entirely and is a declining function of ε (Lambert, 2001, Chapter 4).

Atkinson (1970) proposed the normative index of inequality $A(\varepsilon,\mu)$

$$A(\varepsilon, \mu) = \frac{\mu-\mu_\varepsilon}{\mu}, \tag{6}$$

where μ is the mean income. The Atkinson index measures the fraction of total income that could be given up without loss of social welfare if the remainder were distributed equally (Lambert et al., 2003). It is easy to see when multiplying the numerator and the denominator in Eq. (6) by the population size n.

For a *sample* of incomes, $x_1,\ldots,x_n$, EDEI (3) can be estimated as

$$\hat{\mu}_\varepsilon = \begin{cases} \left(\frac{1}{n}\sum_{i=1}^{n} {x_i}^{1-\varepsilon}\right)^{1/(1-\varepsilon)}, for\ \varepsilon \neq 1 \\ exp\left\{\frac{1}{n}\sum_{i=1}^{n} ln\, x_i\right\}, \quad for\ \varepsilon = 1 \end{cases} \tag{7}$$

Atkinson (1970).

Kot (2020) developed an estimator of ε, assuming that incomes obey the generalised Beta distribution of the second kind (McDonald (1984). Kot and Paradowski (2022) estimated inequality aversion and EDEI for 55 countries in the LIS database using this estimator.

3.2. The poverty line as the lowest income of the non-poor.

[5] We assign capital letters for random variables and lower case letters for the values of random variables.

The theoretical difficulties with establishing *the lower limit* of poverty lines raise the question about the upper limit of the lines. However, there is no consensus about the standard for this limit (Pritchett, 2006).

Pritchett (2006) proposes to base an upper limit of poverty lines on the national poverty lines of rich countries, like the "*one dollar a day"* poverty line is based on the national poverty lines of poor countries. The author maintains that "ten dollars a day" delimits non-poor and poor people in the World.

Nielsen (2009) proposes the mean income as the upper limit of poverty lines. Following the *Daltonian transfer principle*, Nielsen defines the poverty line as "…a level of income that permits a rank-order preserving transfer of income from among those earning more than the poverty line to those earning less that would eradicate poverty. The author notes that "… the rank-order preserving condition limits the level of income that can be transferred, thus ensuring that the transferors don't themselves slip into poverty when helping others out of poverty. As income has to be transferred from among those earning more than the poverty line, there are obvious limits to how high the social planner can set the line." Nielsen maintains that the poverty line *z* must obey the following constraint:

$$\sum_{i=1}^{n}(z - x_i) \leq 0 \tag{8}$$

where x_i is personal income. Eq. (8) implies the following inequality:

$$z \leq \frac{1}{n}\sum_{i=1}^{n} x_i = \bar{x} \tag{9}$$

Thus, the mean income, $\bar{x}$, is the upper limit of poverty lines.

Hoffman (2001) proposed *the relative poverty line* or *the dividing line* between the rich and the poor. The author observed that inequality falls if a low income rises, but inequality rises if a high income rises. Therefore, a specific income level, say x*, must divide these effects. Hoffman (2001) derived $x*$ assuming various inequality measures like the Gini and general entropy indices.

Lambert and Lanza (2006) prove the existence of $x*$ (called by them *the benchmark income*) for a general class of inequality measures.[6] For the Atkinson inequality index (4), the benchmark income has the following form:

$$x^* = \mu(1 - A_\varepsilon)^{(\varepsilon-1)/\varepsilon} \tag{10}$$

If the parameter ε is known, the benchmark income $x*$ could be calculated.

3.3. The national poverty lines

[6] Corvalan (2014) refers to $x*$ as *the pivotal income*.

Knowledge of inequality aversion ε enables us to establish the poverty line as *the lowest limit* of incomes of the non-poor. We have been inspired by Kot's (2009) analysis of an upper limit of inequality aversion ε.

Let z_o be an established poverty line, e.g. the official poverty line. As mentioned, μ_ε (4) is a decreasing function of ε, for a given income distribution. In other words, the greater the value of inequality aversion ε, the lower society's acceptable income level, μ_ε, which eradicates economic inequality, leaving the current social welfare unchanged.

However, μ_ε might be less than z_o for ε greater than a certain level of inequality aversion ε_z say. This would present a peculiar theoretical situation in which a social decisionmaker or a society with inequality aversion $\varepsilon>\varepsilon_z$ promised total eradication of economic inequality at the cost of common poverty! We shall refer to this situation as the "equity-poverty trap" (EPT). Such a promise will not gain conscious attention in any reasonable society. Also, every utility-based economic theory should avoid EPT.

Thus, the following inequality specifies the upper limit of inequality aversion

$$\mu_\varepsilon \geq z_o \tag{11}$$

(Kot, 2009).

Now, we can reverse the direction of reasoning. We assume that ε_z is a known constant, whereas z may vary. Then, the above considerations justify the following inequality:

$$z \leq \mu_\varepsilon \tag{12}$$

Thus, any projected poverty line z should not exceed EDEI when avoiding EPT. Note that μ_ε in Eq. (12) is *the lowest income of the non-poor* since we follow Donaldson-Weymark's (1986) weak poverty line definition. For convenience, we shall refer to μ_e as *the national poverty line*.

The poverty line (12) is welfare-consistent. As mentioned in Subsection 2.2, a poverty line is *welfare-consistent* if the welfare level u* is the same for all individuals (Kakwani, 2010). Note that μ_ε in Eq. (6) is *the abbreviated social welfare function*, namely

$$\mu_\varepsilon = \mu[1 - A(\varepsilon, \mu)] \tag{13}$$

(Lambert, 2001, p. 127). The abbreviated social welfare functions provide a complete ordering of income distributions (ibid, p. 106). Thus, every individual's income is confronted with the same welfare level μ_ε.

If we divide both sides of inequality (12) by the mean income μ, we get the poverty line z as the fraction p of μ, i.e. $p=z/\mu \leq \mu_\varepsilon/\mu$. Then, according to (13), we get

$$p \leq \mu_\varepsilon/\mu = 1 - A(\varepsilon,\mu), \tag{14}$$

where $A(\varepsilon,\mu)$ is the Atkinson index of inequality (6).

In practice, p is set arbitrarily, e.g. 0.5. Inequality (14) provides the upper limit of this quantity when ε is known. The greater the Atkinson index of inequality $A(\varepsilon,\mu)$, the smaller the recommended p.

The mean income μ -Nielson's (2016) upper limit (9) of a poverty line- is a particular case of the EDEI, namely $\mu = \mu_\varepsilon$ for $\varepsilon=0$, i.e. when a society is *inequality neutral*. It is worth adding that all estimates of ε obtained by Kot and Paradowski (2022) were greater than zero. In other words, no "the LIS country" was inequality-neutral.

The benchmark income, x^* (10), in general, is not a good candidate for a poverty line, as Hoffman's (2001) term, *the relative poverty line* might suggest. Note that $1-A_\varepsilon=\mu_\varepsilon/\mu$. Therefore x^* (10) can be expressed as $x^*=\mu_\varepsilon(\mu/\mu_\varepsilon)^{1/\varepsilon} \geq \mu_\varepsilon$, where equality holds for $\varepsilon=0$.[7] For $\varepsilon=0$, $\mu_\varepsilon=\mu$. Thus, x^* could be a good poverty line, i.e. it could avoid EPT only for an inequality-neutral society.

3.5. Determining the international poverty line

Deaton (2010) notes that the measurements of international poverty are of limited interest. Poverty measurement on the national level is the base of redistribution programs and social transfers. The author argues that international poverty counts have no direct redistributive role since no supernational authority exists. The discussion on measuring global poverty and its eradication is left to international organisations like the United Nations and the World Bank.

We can establish the global poverty line for k countries in a given year if we know the national poverty lines $EDE_1,\dots, EDEI_k$. The average, say $\overline{edei}$, of the national poverty lines is improper since it might excide some countries' $EDEI_i$, thus violating the inequality $z \leq \mu_\varepsilon$.

We propose the minimum of countries' EDEIs as the international poverty line for a given year, namely:

$$EDEI_{min} = \min_i(EDEI_1, \dots, EDEI_k) \tag{15}$$

$EDEI_{min}$ guarantees that every country can avoid EPT in a given year. Similarly, the minimum of countries' EDEIs *over time* can serve as a global country-year poverty line.

The global poverty line (15) is welfare-consistent since the welfare level (15) is the same for everyone.

[7] Note that $\mu/\mu_\varepsilon>1$ for $\varepsilon>0$ and $\mu/\mu_\varepsilon=1$ for $\varepsilon=0$.

3.5. Poverty indices in the GB2 distribution

In this paper, we use the FGT_α family of poverty indices, defined as

$$FGT_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{z-x_i}{z}\right)^{\alpha}, \tag{16}$$

where z is a predetermined poverty line, q is the number of poor persons, i.e. with an income of x_i, i=1,…, q, less than z. The parameter $\alpha \geq 0$ is a measure of *poverty aversion*; a larger α, the greater emphasis on the poorest poor. As α tends to infinity, the condition of the poorest poor is all that matters. (Foster, Greer, and Thorbecke, 1984).

Ravallion (1994) uses the terms: “poverty incidence, depth and severity” for the three main measures FGT_0, FGT_1, and FGT_2. The index FGT_0 is the headcount ratio, i.e. the fraction of the population that is poor. FGT_1 measures *overall poverty*, i.e., the average societal deprivation (Foster and Shorrocks, 1991). FGT_2 measures “poverty severity”.

The axiomatic properties of the family $FGT\alpha$ of poverty indices (16) are sound and include the beneficial properties of additive decomposability and subgroup consistency, allowing poverty to be evaluated across population subgroups coherently. More specifically, when a population comprises k subgroups with frequencies n_i and poverty indices $FGT_{\alpha i}$, i= 1,…, k, then poverty in the population can be expressed as follows

$$FGT_\alpha = \sum_{i=1}^{k} FGT_{\alpha i}\frac{n_i}{\sum_{i=1}^{k} n_i} \tag{17}$$

(Foster, Greer, and Thornbecke, 1984). In other words, if we can measure poverty in subpopulations, we can measure poverty in the population as a whole.

As we mentioned earlier, Kot and Paradowski (2022) estimated inequality aversion, assuming that incomes obey *the general beta* distribution *of the second kind*, GB2(a,b,p,q) (McDonald, 1984). The authors estimated this distribution’s parameters a, b, p, and q. Using these estimates, we can calculate poverty indices FGT_α.

Chotikapanich et al. (2018) show that the main FGT_α poverty measures for α=0, 1, and 2 have the following forms:

$$FGT_0 = B(v|p,q) \tag{18}$$

$$FGT_1 = B(v|p,q) - \frac{\mu}{z}B(v|p+\frac{1}{a}, q-1/a) \tag{19}$$

$$FGT_2 = B(v|p,q) - \frac{2\mu}{z}B\left(v\middle|p+\frac{1}{a}, q-\frac{1}{a}\right)$$

$$+\frac{m_2}{z^2}B(v|p+\frac{2}{a}, q-\frac{2}{a}) \tag{20}$$

where μ is the mean income, m_2 is the second moment of the GB2 distribution, and $B(v|p,q)$ is *the normalised incomplete Beta function* at

$$v = (z/b)^a/[1 + (z/b)^a]$$

4. Statistical data

Kot and Paradowski (2022) estimated countries' aversion to inequality using micro-data on disposable household incomes from the Luxembourg Income Study (LIS) Database (2020).[8] The authors also utilised several datasets from the ERF-LIS Database, namely Egypt (1999, 2004, 2008, 2010, 2012, 2015), Iraq (2007, 2012), Jordan (2002, 2006, 2008, 2010, 2013), Palestine (2010, 2017), and Sudan (2009). These datasets contain household disposable income s comparable to other LIS datasets. Kot and Paradowski (2022) used all available LIS data for 55 countries and 1967-2018. The authors got 391 country-year cases.[9]

Incomes were expressed in International $US PPP adjusted at constant 2011 prices. Disposable household incomes were adjusted by the square root equivalence scale (Atkinson et al. 1995). Kot and Paradowski (2022) applied weights equal to household sizes multiplied by survey weights in all calculations. We shall refer to those weights as w_N. It is worth adding that the authors excluded households with zero disposable income from our statistical analysis. Statistical analyses utilised household disposable income *without* top-coding and bottom-coding.

The current paper updates the above data with new observations for upcoming years. Our sample comprises 661 country-year cases for 55 countries. Table 1 shows the distribution of the LIS data in the World Bank. Geographic Regions.

[8] Note that the number of LIS datasets increases four times per year as new datasets are added to the Luxembourg Income Study (LIS) Database.

[9] The ERF-LIS Database was provided to LIS by the Economic Research Forum (ERF) and harmonized at LIS with the same standards as the other LIS datasets. For more information, see https://www.lisdatacenter.org/our-data/erf-lis-database

Table 1. The distribution of the LIS countries in the world Bank geographical Regions.

Region	N	*Cases*		*Persons*	*Countries*
		n	%	%	
East Asia & Pacific (**EAP**)	6	39	5.90	2.81	AUS, CHN, JPN, KOR, TWN, VNM
Europe & Central Asia (**EUR**)	28	380	57.49	31.50	AUT, BEL, CHE, CZE, DEU, DNK, ESP, EST, FIN, FRA, GBR, GEO, GRC, HUN, IRL, ISL, ITA, LTU, LUX, NLD, NOR, POL, ROM, RUS, SRB, SVK, SVN, SWE
Latin America & Caribbean (**LAC**)	10	113	17.10	43.62	BRA, CHL, COL, DOM, GTM, MEX, PAN, PER, PRY, URY
The Middle East & North Africa (**MENA**)	5	38	5.75	2.84	EGY, IRQ, ISR, JOR, PSE
North America (**NAM**)	2	72	10.89	17.02	CAN, USA
South Asia (**SAS)**	2	2	0.00	0.77	IND
Sub-Saharan Africa (**SUBS**)	4	17	2.57	1.44	CIV, MLI, SDN, ZAF
All Regions	55	661	100.00	100.00	

Note: N- the number of countries, n- the number of country-year cases, % - per cent of cases, Persons [%] – per cent of household members (54,597,701 total in samples)
Source: Authors' elaboration

The LIS does not collect country income data annually. Instead, data are collected within "waves", i.e. the periods covering four or fewer years. Because of that, we shall use wave numbers as a time index when analysing the dynamic of poverty in the World. The global poverty line will be the minimum EDEI within a given wave.

5. The estimates of national poverty lines and poverty

Table A1 in the Appendix presents the estimates of the national poverty lines, EDEI, and the leading three FGT poverty indices for all countries in the LIS database. As income data are annual, EDEI – the national poverty line- is also annual. For illustrative sake, we calculate the daily poverty line by dividing the annual poverty line by 365. This Table also presents the estimates of inequality aversion ε, the Atkinson index. The Table's last two columns show the ratio p of the poverty line and the mean (Eq. 14) and the ratio p^* of the poverty line and the median.

In Table A1, blank cells indicate that FGT_2 cannot be calculated from Eq. (20). In some cases, the estimates of the GB2 distribution parameters violated the condition of existence of the Beta function.

Basic descriptive statistics in Table 2 summarise the results of Table A1.

Table 2. Descriptive statistics of inequality aversion ε, and national poverty measures.

Para meter	*Country-year cases*	*Valid N*	*Mean*	*Median*	*Min.*	*Max.*	*Coefficient of variation*
ε	All	661	1.684	1.528	0.969	5.332	28.55
	Non-OECD	213	1.634	1.356	0.969	3.801	37.12
	OECD	448	1.731	1.657	1.229	5.332	18.00
EDEI per day	All	661	37.66	22.61	3.33	105.40	74.03
	Non-OECD	213	14.81	13.05	3.33	65.37	59.78
	OECD	448	59.29	63.44	7.69	105.40	36.83
p	All	661	0.634	0.656	0.228	0.839	17.09
	Non-OECD	213	0.551	0.540	0.228	0.829	12.95
	OECD	448	0.713	0.728	0.432	0.839	10.13
*p**	All	661	0.819	0.826	0.501	0.879	5.40
	Non-OECD	213	0.803	0.821	0.501	0.879	6.87
	OECD	448	0.834	0.835	0.665	0.873	2.58
FGT_0	All	661	0.375	0.380	0.181	0.440	10.07
	Non-OECD	213	0.384	0.405	0.182	0.440	12.88
	OECD	448	0.367	0.368	0.181	0.418	4.95
FGT_1	All	661	0.137	0.140	0.034	0.234	26.61
	Non-OECD	213	0.155	0.172	0.052	0.234	25.62
	OECD	448	0.120	0.112	0.034	0.188	18.54
FGT_2	All	631	0.070	0.070	0.010	0.161	40.56
	Non-OECD	187	0.085	0.099	0.018	0.161	37.93
	OECD	444	0.058	0.052	0.010	0.113	29.93

Note:
EDEI-the national poverty line per day per equivalent person [International US$, 2011 PPP adjusted]]
p=EDEI/Mean
p=EDEI/Median*
FGT_0, FGT_1, and FGT_2 – poverty rate, overall poverty, and poverty severity, respectively weighted by w_N.
Source: Own calculations using data from Table A1 in the Appendix.

The first row of Table 2 shows that societies in analysed countries are inequality averse since all estimates of ε are positive. Therefore EDEI - the actual poverty line- is less than the mean income, Nielsen's (2009) upper limit of poverty lines.

Ninety per cent of country-year cases has inequality aversion of less than 2.416 (the 90 percentile). Among the remaining 66 cases with ε>2.416, there were 30 cases from Europe and Central Asia, followed by Latin America and the Caribbean (14 cases), The Middle East and North America (12 cases) and East Asia and Pacific (10 cases). Assigning high inequality aversion to a high or not level of development would be problematic. For a broader discussion of these issues, see Kot and Paradowski (2022).

Fig. 2 displays the distribution of national poverty lines EDEI per day per equivalent person.[10] As this distribution is bimodal, a standard interpretation of descriptive statistics in Table 2 should be taken with caution.

[10] As we mentioned in the previous Section, disposable household income was adjuste by the square root equivalence scale, i.e. the square root of the household size.

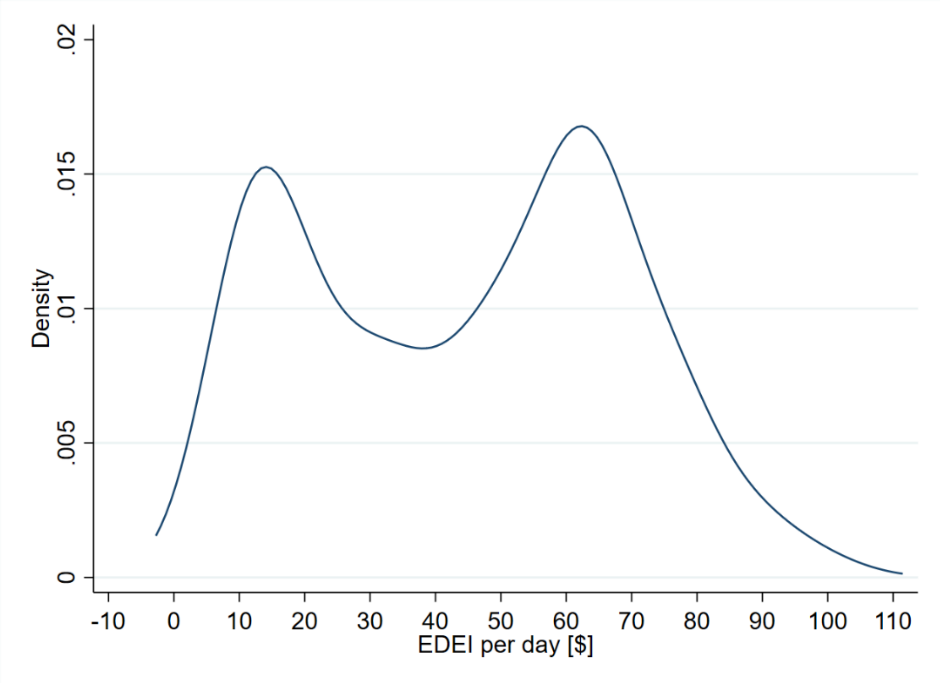

Fig. 2. The distribution of national poverty lines (EDEI per day).
Note: Gaussian kernel estimates.
Source: Own calculations using data from Table A1 in the Appendix.

The first and second local maxima in Fig. 2 are $14.11 and $62.4, respectively. Only 40 country-year cases are less than $10, i.e. Pritchett's (2006) upper limit of poverty lines. However, we estimate EDEI from income distributions adjusted by the square root equivalence scale, whereas Pritchett and other authors use per capita income distributions.

The bimodal distribution of national poverty lines suggests it could be a mixture of at least two distributions. We break down the country-year cases into the OECD and non-OECD members. Fig. 3 illustrates the two resulting distributions of national poverty lines.

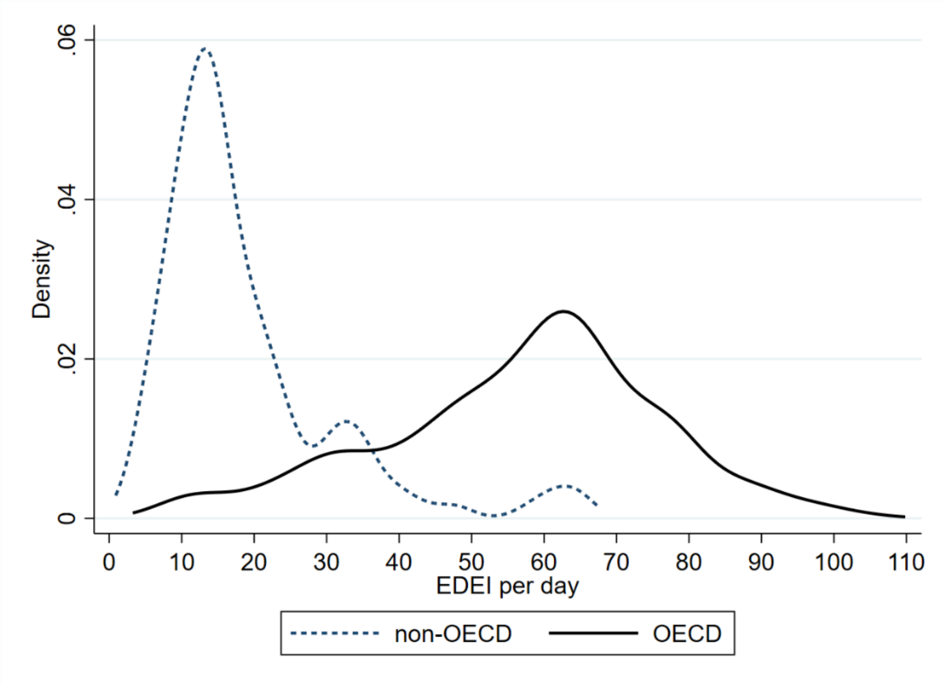

Fig. 3. The distributions of national poverty lines (EDEI per day)
for OECD and non-OECD country-year cases.
Note: Gaussian kernel estimates.
Source: Own calculations using data from Table A1 in the Appendix.

We also present the basic descriptive statistics of the poverty line distributions in Table 2. This Table shows that the poverty lines for developed countries are greater on average than those for developing countries.

The country-specific poverty line in the form of EDEI reflects its relative nature. The relative poverty line is usually considered an arbitrarily predetermined fraction of the mean or median income, e.g., 0.5 or 0.6.

As we dispose of estimates of EDEI, we can calculate the actual fractions *p=EDEI/Mean* and *p*=EDEI.Median* (see last columns of Table A1 in the Appendix). The descriptive statistics of *p* and *p** distributions in Table 2 show a wide range of these fractions. For instance, *p* ranges from 0.228 (South Africa, 2008) to 0.839 (Sweden, 1991). The *p** fraction varies from 0.5001 (China, 2002) to 0.879 (Slovakia, 1992). One can see in Table 2 that the fractions *p* and *p** for developed countries are greater on average than those for developing countries.

As *p,* by construction*,* is an upper boundary of the fraction of the mean income for the relative poverty lines, applying one *p* common to all countries might put some countries in EPT. For instance, forty country-year cases of the *p* were less than 0.5, namely 39 cases from Latin America and the Caribbean, 7 cases from the Subsharian Region, and four single cases from South Asia (India), Europe and Central Asia (Georgia), East Asia and Pacific (China), and

Middle East and North Africa (Palestine). If these countries used the poverty line of 50 per cent of the mean income, they would face ERT.

The poverty measurements in Table A1 in the Appendix reveal some interesting facts. Fig. 4 displays the distributions of the estimates of FGT_0 calculated at national poverty lines. Table 2 contains the descriptive statistics of this distribution.

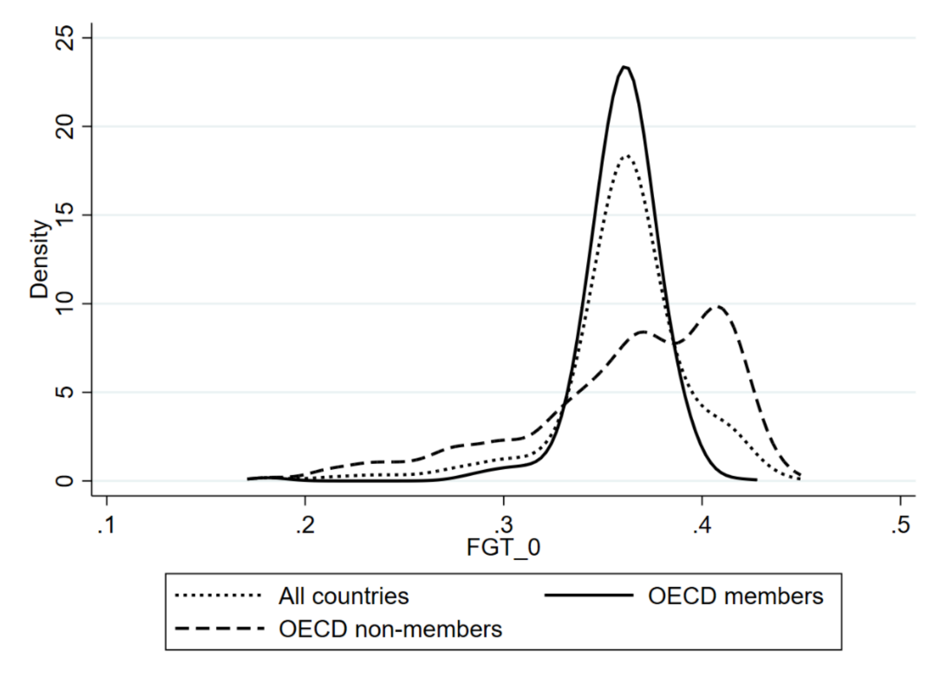

Fig. 4. The distribution of poverty rates calculated at national poverty lines.

Note: Gaussian kernel estimates.

Source: Own calculations using data from Table A1 in the Appendix.

In Fig. 4, different shapes of the density functions of FGT_0 for developed and developing countries are apparent. Nevertheless, it seems a surprise that the headcount ratio in developed countries is similar to that in developing countries. On average, 36.7 % of poor people are in developed countries and 38.4% in developing countries. This result is due to differences in national poverty standards.

Examining overall poverty, measured by FGT_1, and poverty severity, measured by FGT2, shows more pronounced differences between developed and developing countries. Fig. 5 shows the distributions of FGT_1 indices in our sample.

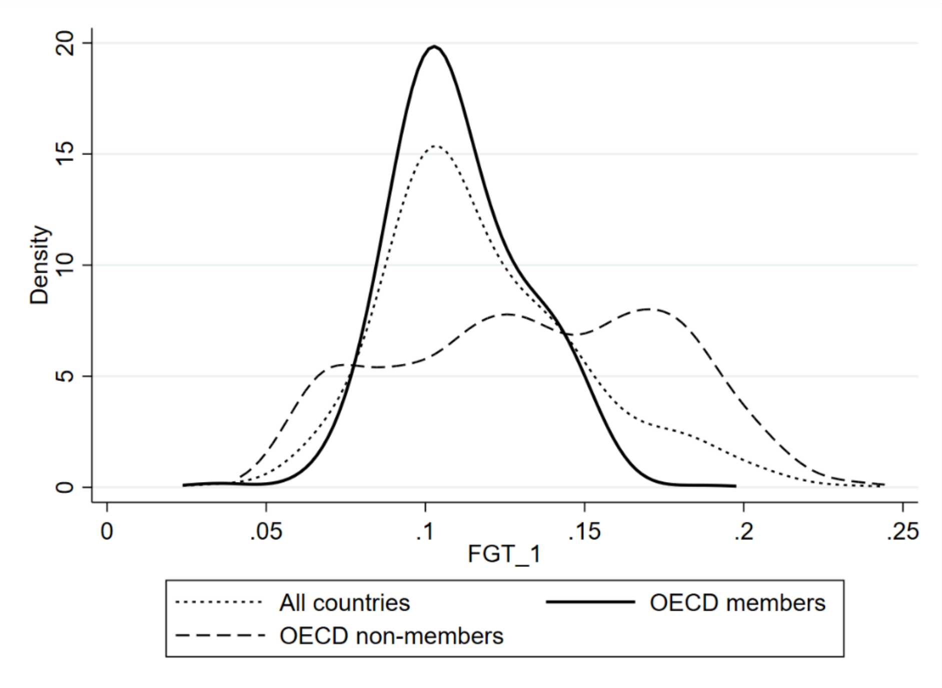

Fig. 5. The distributions of overall poverty calculated at national poverty lines.

Note: Gaussian kernel estimates.
Source: Own calculations using data from Table A1 in the Appendix.

Fig. 5 displays different shapes of density functions of FGT_1 for developed and developing countries. Comparing the expectations of FGT_1 indices in Table 2 shows that average deprivation in developed countries is less than that in developing countries.

Fig. 6 displays the distributions of FGT_2 measures of poverty severity.

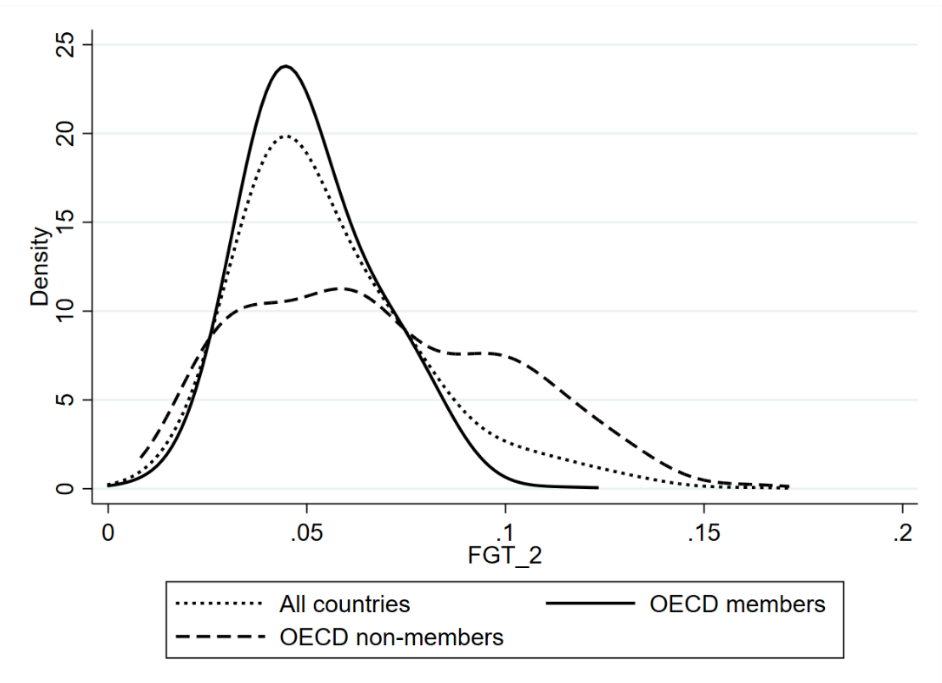

Fig. 6. The distributions of poverty severity calculated at national poverty lines.

Note: Gaussian kernel estimates.

Source: Own calculations using data from Table A1 in the Appendix.

Fig. 6 shows a remarkable difference between the distributions of FGT_2 for developed and developing countries. One can also see the differences in descriptive statistics presented in Table 2. On average, poverty severity in developed countries is less than in developing countries.

6. The assessment of international poverty.

In subsection 3.2, we argued for $EDEI_{min}$ (15) as the international poverty line for a group of countries in a given year. Only such a global poverty line guarantees that every country can avoid EPT. Similarly, the minimum of countries' EDEIs across countries *and* over time may serve as a global country-year poverty line.

In Section 4, we admitted to using wave numbers as a time index when analysing the dynamic of poverty in the World. Thus, the international poverty line will be the EDEImin within a given wave. In this Section, we only present results for waves 3 to 11 since the number of country-year cases in the remaining waves is too small.

We follow a two-level generalisation when assessing international poverty. First, we analyse poverty in a regional group of countries within each wave. Next, we analyse poverty across these countries and over the waves. On the second level of generalisation, we analyse poverty across all countries within each wave. Next, we analyse poverty across these countries and over the waves.

6.1. The assessment of poverty in selected geographical regions.

In this subsection, we present poverty measurements for two of the World Bank's geographic regions: Europe and Central Asia, *Latin America and the Caribbean*. These regions comprise about 70 per cent of the country-year cases in our sample. Table 1 in Section 4 provides a detailed description of the countries of these regions.

Table 3a presents poverty measurements in Europe and the Central Asia Region. We collect countries within each wave separately. We estimate the poverty indices FGT_0, FGT_1 and FGT_2 (Eqs. 18, 19 and 20) in the following way. We find *the reference country* with a minimal national poverty line, $EDEI_{min}$, among all countries within a given wave. Then, we apply this poverty line to calculate the mean values of countries' FGT indices using the population weights. The wave numbers serve as the time index. In Table 3a, the last row contains poverty measurements for all country-wave cases.

Table 3a. Poverty in Europe and Central Asia. Distinct poverty lines for each wave

Wave	Years	No, of countries	Poverty line ($EDEI_{min}$ within a wave)			FGT$_0$	FGT$_1$	FGT$_2$
			Per year	Per day	Reference country			
3	1988-1992	24	7953	21.79	Slovakia 1992	0.08887	0.01993	0.00725
4	1993-1997	38	3949	10.82	Romania 1997	0.06007	0.01633	0.00682
5	1998-2002	37	3591	9.84	Russia 2000	0.00898	0.00263	0.00120
6	2003-2005	37	5899	16.16	Russia 2004	0.04724	0.01324	0.00575
7	2006-2008	40	6042	16.55	Serbia 2006	0.03747	0.01046	0.00456
8	2009-2011	47	2446	6.70	Georgia 2009	0.01040	0.00395	0.00216
9	2012-2014	47	2880	7.89	Georgia 2013	0.00854	0.00272	0.00131
10	2015-2017	52	3764	10.31	Georgia 2016	0.01149	0.00346	0.00161
11	2018-2022	21	4072	11.16	Georgia 2018	0.01183	0.00368	0.00174
Total		**343**	**2446**	**6.70**	**Georgia 2009**	**0.00619**	**0.00191**	**0.00091**

Source: Own calculations using data from Table A1 in the Appendix.

Examining Table A1 in the Appendix shows that every wave contains distinct national poverty lines. Therefore, we estimate poverty indices at a lower poverty line than the national one for all countries in a given wave except the reference country.

Table 3a shows that poverty incidence, as measured by FGT$_0$, ranges from 0.85% in the ninth wave to 8.89% in the third wave. 0.619% characterises poverty incidence in this region as a whole.

Table 3b. Poverty in Europe and Central Asia. One poverty line for all waves

Wave	Years	No, of countries	Poverty line ($EDEI_{min}$)*		FGT$_0$	FGT$_1$	FGT$_2$
			Per year	Per day			
3	1988-1992	24	2446	6.70	0.00158	0.00039	0.00016
4	1993-1997	38	2446	6.70	0.01644	0.00423	0.00173
5	1998-2002	37	2446	6.70	0.00353	0.00105	0.00049
6	2003-2005	37	2446	6.70	0.00477	0.00133	0.00058
7	2006-2008	40	2446	6.70	0.00360	0.00103	0.00046
8	2009-2011	47	2446	6.70	0.01040	0.00395	0.00216
9	2012-2014	47	2446	6.70	0.00606	0.00192	0.00092
10	2015-2017	52	2446	6.70	0.00421	0.00128	0.00060
11	2018-2022	21	2446	6.70	0.00383	0.00119	0.00056
Total		**343**	**2446**	**6.70**	**0.00619**	**0.00191**	**0.00091**

Source: Own calculations using data from Table A1 in the Appendix

Table 4a. Poverty in Latin America and the Caribbean

Wave	Years	No, of countries	Poverty line ($EDEI_{min}$ within a wave)			FGT$_0$	FGT$_1$	FGT$_2$
			Per year	Per day	Reference country			
3	1988-1992	4	2865	7.85	Chile 1990	0.33372	0.12458	0.04997
4	1993-1997	5	2807	7.69	Mexico 1996	0.26964	0.10118	0.05872
5	1998-2002	10	3016	8.26	Mexico 1998	0.33591	0.14323	0.06597
6	2003-2005	12	3049	8.35	Peru 2004	0.34698	0.14880	0.08749
7	2006-2008	17	3359	9.20	Colombia 2006	0.30321	0.12720	0.07935
8	2009-2011	18	3299	9.04	Guatemala 2011	0.25844	0.10531	0.06382
9	2012-2014	18	3551	9.73	Guatemala 2014	0.24539	0.10015	0.05968
10	2015-2017	17	4921	13.48	Colombia 2016	0.33414	0.13696	0.08545
11	2018-2022	11	4346	11.91	Colombia 2020	0.32590	0.13556	0.07812
Total		**112**	**2807**	**7.69**	**Mexico 1996**	**0.21404**	**0.08650**	**0.04769**

Source: Own calculations using data from Table A1 in the Appendix.

Table 4b. Poverty in Latin America and the Caribbean. One poverty line for all waves

Wave	Years	No, of countries	Poverty line ($EDEI_{min}$)*		FGT_0	FGT_1	FGT_2
			Per year	Per day			
3	1988-1992	4	2807	7.69	0.32423	0.12036	0.04804
4	1993-1997	5	2807	7.69	0.26964	0.10118	0.05872
5	1998-2002	10	2807	7.69	0.30798	0.12992	0.05876
6	2003-2005	12	2807	7.69	0.31424	0.13312	0.07821
7	2006-2008	17	2807	7.69	0.24062	0.09872	0.06153
8	2009-2011	18	2807	7.69	0.20738	0.08294	0.04999
9	2012-2014	18	2807	7.69	0.17708	0.07074	0.04187
10	2015-2017	17	2807	7.69	0.15031	0.05832	0.03589
11	2018-2022	11	2807	7.69	0.17949	0.07144	0.04037
Total		**112**	**2807**	**7.69**	**0.21397**	**0.08649**	**0.04769**

Source: Own calculations using data from Table A1 in the Appendix

Table 3 shows the assessments of global poverty *within each wave separately*. We estimate the poverty indices FGT_0, FGT_1 and FGT_2 (Eqs. 18, 19 and 20) in the following way. We find *the reference country* with a minimal national poverty line, $EDEI_{min}$, among all countries within a given wave. Then we apply this poverty line to calculate the mean values of countries' FGT indices using the population weights. The last row of Table 3 ("Total") shows the assessment of poverty across all countries and over waves. China (2002) is the reference country.

Table 3. Poverty in the World across all LIS countries within waves.

Wave number	Years	No, of cases	Poverty line ($EDEI_{min}$ within a wave)			FGT_0	FGT_1	FGT_2
			Per year	Per day	Reference country			
3	1988-1992	37	2865	7.85	Chile 1990	0.06569	0.02430	0.00242
4	1993-1997	55	2807	7.69	Mexixo 1996	0.05485	0.01913	0.00492
5	1998-2002	65	1215	3.33	China 2002	0.03527	0.01393	0.00149
6	2003-2005	64	1580	4.33	India 2004	0.08514	0.03431	0.01407
7	2006-2008	78	1793	4.91	Ivory Coast 2008	0.07265	0.02897	0.01540
8	2009-2011	87	1471	4.03	Mali 2011	0.05586	0.02152	0.01089
9	2012-2014	87	1823	4.99	Mali 2013	0.05593	0.02156	0.01221
10	2015-2017	90	1895	5.19	Ivory Coast 2015	0.05118	0.01957	0.01020
11	2018-2022	41	2267	6.21	Mali 2020	0.08189	0.03161	0.01752
Total*		**604**	**1215**	**3.33**	**China 2002**	**0.06127**	**0.02375**	**0.01121**

*) Waves 3-11, 604 country-year cases.
Source: Own calculations using data from Table A1 in the Appendix.

Examining Table 3 shows wave/time-specific poverty lines. This implies wave-specific estimates of poverty indices. The changes in poverty indices along the waves are due to the changes in poverty lines and income distributions.

Table 4 presents the estimates of the poverty indices FGT_0, FGT_1 and FGT_2 (Eqs. 18, 19 and 20) for all countries and waves from 3 to 11. We apply the poverty line of $1215 (China, 2002) common to all waves.

Table 4. Poverty in the World across all LIS countries and waves

Wave	Years	No, of countries	Poverty line ($EDEI_{min}$)* Per year	Per day	FGT_0	FGT_1	FGT_2
3	1988-1992	37	1215	3.33	0.01433	0.00470	0.00040
4	1993-1997	55	1215	3.33	0.01115	0.00365	0.00079
5	1998-2002	65	1215	3.33	0.03527	0.01393	0.00149
6	2003-2005	64	1215	3.33	0.05831	0.02311	0.00949
7	2006-2008	78	1215	3.33	0.04060	0.01602	0.00859
8	2009-2011	87	1215	3.33	0.04146	0.01582	0.00800
9	2012-2014	87	1215	3.33	0.02935	0.01123	0.00637
10	2015-2017	90	1215	3.33	0.02499	0.00951	0.00489
11	2018-2022	41	1215	3.33	0.03029	0.01156	0.00640
Total		**604**	**1215**	**3.33**	**0.06127**	**0.02375**	**0.01121**

*) China, 2002
Source: Own calculations using data from Table A1 in the Appendix.

Figure 8-10 displays the trends of FGT_0, FGT_1, and FGT_2, using the wave numbers as a time index.. We smooth the time series of the poverty indices nonparametrically by the distance-weighted least squares (Netter et al. 1996).

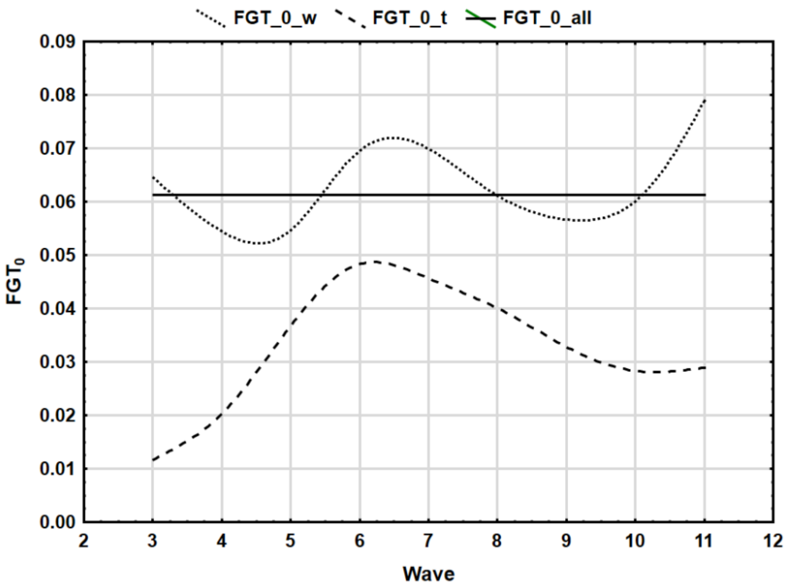

Fig. 8. Poverty incidence (the fraction of the poor) as measured by FGT_0.
Note: *FGT_0_w* is the fraction of the poor when within waves' poverty lines are applied (Table 3); FGT_0_t is the fraction of the poor when a common poverty line is applied (Table 4); FGT_0_all is the fraction of the poor over all countries and waves (the last rows of Tables 3 and 4).
Source: Own elaboration using data from Tables 3 and 4.

If we measure poverty incidence with wave-specific poverty lines (FGT_0_w), the per cent of the poor oscillates around 6.1%, i.e. around the overall level FGT_0_t. Applying the poverty line of $1215 (China, 2002) common to all waves, the changes in FGT_0_all show an increase in poverty incidence until the six*th* wave (2003-2005) and a slight decrease in the subsequent waves. Notably, the last approach corresponds to standard practice in assessing the poverty rates with an absolute poverty line.

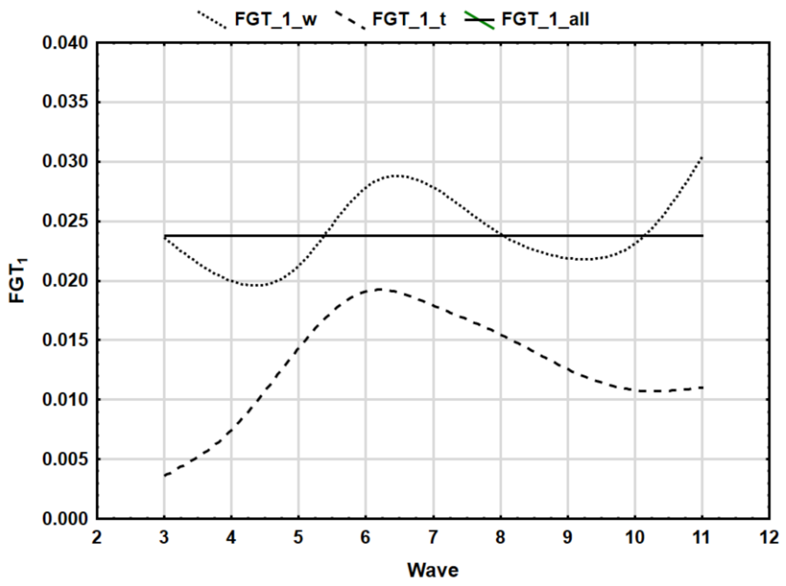

Fig. 9. Poverty deepness as measured by FGT_1.
Note: FGT_1_w is poverty deepness when within waves' poverty lines are applied (Table 3);
FGT_1_t is poverty deepness when a common poverty line is applied (Table 4);
FGT_1_all is poverty deepness over all countries and waves (the last rows of Tables 3 and 4).
Source: Own elaboration using data from Tables 3 and 4.

Fig. 9 shows the trends of overall poverty, measured by FGT_1. The changes in the average deprivation pattern is similar to the trends in Fig.8.

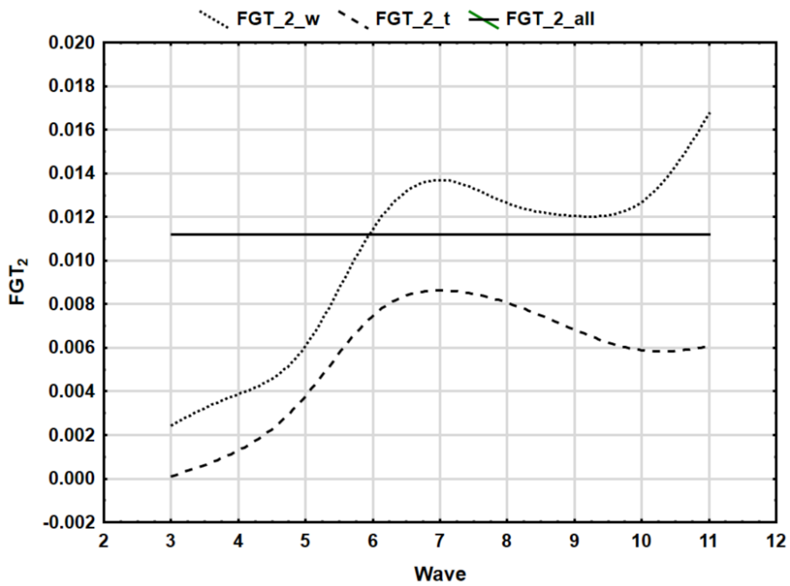

Fig. 10. Poverty severity as measured by FGT_1.
Note: FGT_2_w is poverty severity when within waves' poverty lines are applied (Table 3);
FGT_2_t is poverty severity when a common poverty line is applied (Table 4);
FGT_2_all is poverty severity over all countries and waves (the last rows of Tables 3 and 4).
Source: Own elaboration using data from Tables 3 and 4.

Examining Fig.10 shows a different pattern of changes in poverty severity than that observed for poverty incidence and overall poverty in Figs. 8 and 9. If we apply the wave-specific poverty line, poverty severity *FGT_2_w* increased until wave 7 (2006-2008). In subsequent waves, severity decreased until wave 9 (2012-2014) and then increased again. If we applied the constant poverty line of China in 2002, poverty severity, as measured by *FGT_2_all,* increased until wave 7 (2006-2008) and decreased in subsequent years.

6. Conclusions

The "from the bottom upward" method of establishing the poverty line lacks a solid theoretical foundation. Relying on information from outside economics introduces arbitrariness when addressing the non-identification of microeconomic poverty lines. Microeconomic theory does not provide guidance on setting the upper limit for complementing food goods with non-food goods. In contrast, the "from the top downward" method, which uses the equally distributed equivalent income (EDEI), effectively determines the lowest income limit for the non-poor and has solid theoretical support as a national poverty line. Using poverty lines higher than EDEI can lead to an *equity-poverty trap*, a peculiar theoretical situation when eradicating inequality would be attainable at the cost of common poverty. Mean income is not a suitable poverty line for societies that are averse to inequality, as EDEI equals the mean income only in inequality-neutral societies. For international poverty comparisons within a group of countries, the minimum national poverty line ($EDEI_{min}$) can be used as a standard poverty line, helping all countries avoid the *equity-poverty trap.*

Empirical results suggest that national poverty lines are specific to each country and year. Global poverty assessments vary with the number of countries analyzed: the more sizable the group, the smaller the global poverty lines and, therefore, lower poverty rates. Daily poverty lines are generally higher than the World Bank's one-dollar-a-day line. Given the limited sample of countries in the LIS database, our empirical findings should be generalized with caution.

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Appendix

Note:
ε – inequality aversion
A_ε – the Atkinson index
EDEI – equally distributed equivalent income (the poverty line)
H_{Me} - head-count ratio at poverty line=0.6 median
FGT_0 - head-count ratio at poverty line=*EDEI*
FGT_1 – *poverty intensity index* at poverty line=*EDEI*
FGT_2 – *poverty severity index* at poverty line=*EDEI*
$\$/day$ – $EDEI/365$ poverty line per day

p- the ratio: *EDEI/Mean*
p- the ratio EDEI/Mean*

Table A1. The ethical measures of inequality and poverty for countries in the LIS database.

Country	*Year*	ε	A_ε	*EDEI*	FGT_0	FGT_1	FGT_2	*$/day*	*p*	*p**
Australia	1981	1.6559	0.2413	18323	0.3578	0.1180	0.0571	50.2	0.7587	0.8196
Australia	1985	1.6305	0.2493	18132	0.3624	0.1205	0.0586	49.7	0.7508	0.8239
Australia	1989	1.6555	0.2625	18383	0.3642	0.1212	0.0589	50.4	0.7375	0.8231
Australia	1995	1.7709	0.2751	16790	0.3598	0.1167	0.0551	46.0	0.7249	0.8177
Australia	2001	1.7532	0.2842	18668	0.3625	0.1188	0.0566	51.1	0.7158	0.8183
Australia	2003	1.6916	0.2744	19260	0.3639	0.1211	0.0585	52.8	0.7256	0.8199
Australia	2004	1.7098	0.2766	21009	0.3672	0.1195	0.0568	57.6	0.7234	0.8291
Australia	2008	1.7263	0.2965	25768	0.3709	0.1208	0.0574	70.6	0.7035	0.8312
Australia	2010	1.7306	0.2977	25778	0.3681	0.1214	0.0580	70.6	0.7023	0.8240
Australia	2014	1.6361	0.2813	28126	0.3740	0.1230	0.0594	77.1	0.7187	0.8395
Australia	2016	1.6679	0.2835	27673	0.3709	0.1226	0.0591	75.8	0.7165	0.8313
Australia	2018	1.6400	0.2790	28015	0.3724	0.1230	0.0595	76.8	0.7210	0.8359
Austria	1987	2.2906	0.2017	22342	0.3404	0.0849	0.0325	61.2	0.7983	0.8481
Austria	1994	1.7846	0.2345	24181	0.3625	0.1069	0.0477	66.3	0.7655	0.8509
Austria	1995	1.5959	0.2288	20643	0.3588	0.1182	0.0576	56.6	0.7712	0.8271
Austria	1997	1.8615	0.2259	23272	0.3578	0.1030	0.0449	63.8	0.7741	0.8476
Austria	2000	1.9879	0.2197	24642	0.3555	0.0967	0.0401	67.5	0.7803	0.8535
Austria	2003	1.7187	0.2210	25518	0.3584	0.1075	0.0490	69.9	0.7790	0.8485
Austria	2004	1.9555	0.2316	26547	0.3613	0.0985	0.0411	72.7	0.7684	0.8599
Austria	2005	1.8991	0.2218	25638	0.3574	0.1003	0.0429	70.2	0.7782	0.8521
Austria	2006	1.9573	0.2303	25818	0.3588	0.0992	0.0417	70.7	0.7697	0.8535
Austria	2007	1.6810	0.2403	26776	0.3643	0.1134	0.0529	73.4	0.7597	0.8445
Austria	2008	1.6605	0.2321	27374	0.3621	0.1121	0.0524	75.0	0.7679	0.8472
Austria	2009	1.5390	0.2408	27908	0.3636	0.1196	0.0589	76.5	0.7592	0.8425
Austria	2010	1.6952	0.2360	28045	0.3633	0.1115	0.0515	76.8	0.7640	0.8473
Austria	2011	1.5869	0.2349	27630	0.3625	0.1165	0.0562	75.7	0.7651	0.8432
Austria	2012	1.5611	0.2291	27047	0.3599	0.1170	0.0570	74.1	0.7709	0.8397
Austria	2013	1.7430	0.2337	27937	0.3627	0.1085	0.0491	76.5	0.7663	0.8506
Austria	2014	1.7455	0.2263	27629	0.3605	0.1069	0.0482	75.7	0.7737	0.8515
Austria	2015	1.6743	0.2250	27533	0.3596	0.1104	0.0513	75.4	0.7750	0.8463
Austria	2016	1.5728	0.2335	28688	0.3615	0.1167	0.0565	78.6	0.7665	0.8430
Austria	2017	1.6985	0.2313	28468	0.3617	0.1107	0.0511	78.0	0.7687	0.8462
Austria	2018	1.6376	0.2305	28511	0.3611	0.1123	0.0528	78.1	0.7695	0.8485
Austria	2019	1.5910	0.2290	29021	0.3598	0.1146	0.0550	79.5	0.7710	0.8443
Belgium	1985	2.4482	0.2085	17092	0.3378	0.0812	0.0300	46.8	0.7915	0.8484
Belgium	1988	2.2991	0.2051	17988	0.3454	0.0847	0.0320	49.3	0.7949	0.8560
Belgium	1992	2.5618	0.2118	18932	0.3294	0.0786	0.0287	51.9	0.7882	0.8393
Belgium	1995	1.8722	0.2231	21570	0.3575	0.1019	0.0441	59.1	0.7769	0.8495
Belgium	1997	1.9429	0.2163	21276	0.3499	0.0993	0.0425	58.3	0.7837	0.8392

Country	*Year*	ε	A_ε	*EDEI*	FGT_0	FGT_1	FGT_2	*$/day*	*p*	*p**
Belgium	2000	1.9516	0.2396	22780	0.3611	0.1006	0.0425	62.4	0.7604	0.8533
Belgium	2003	1.8948	0.2217	22188	0.3537	0.1017	0.0442	60.8	0.7783	0.8416
Belgium	2004	2.4163	0.2595	22197	0.3377	0.0873	0.0338	60.8	0.7405	0.8280
Belgium	2005	1.9796	0.2325	23307	0.3557	0.0994	0.0420	63.9	0.7675	0.8458
Belgium	2006	1.9681	0.2339	23725	0.3546	0.1004	0.0428	65.0	0.7661	0.8417
Belgium	2007	2.0246	0.2360	24016	0.3533	0.0984	0.0413	65.8	0.7640	0.8418
Belgium	2008	2.1787	0.2388	24204	0.3432	0.0934	0.0382	66.3	0.7612	0.8309
Belgium	2009	2.0096	0.2373	24469	0.3502	0.0997	0.0425	67.0	0.7627	0.8337
Belgium	2010	1.9548	0.2291	24565	0.3504	0.1009	0.0436	67.3	0.7709	0.8341
Belgium	2011	1.8748	0.2281	24118	0.3547	0.1038	0.0456	66.1	0.7719	0.8387
Belgium	2012	1.9467	0.2296	24971	0.3524	0.1011	0.0435	68.4	0.7704	0.8376
Belgium	2013	2.0226	0.2372	24512	0.3473	0.0994	0.0425	67.2	0.7628	0.8290
Belgium	2014	2.2553	0.2502	24112	0.3366	0.0920	0.0375	66.1	0.7498	0.8198
Belgium	2015	2.2536	0.2541	24548	0.3357	0.0924	0.0379	67.3	0.7459	0.8168
Belgium	2016	2.1131	0.2387	24733	0.3456	0.0959	0.0399	67.8	0.7613	0.8312
Belgium	2017	2.0027	0.2284	25339	0.3480	0.0989	0.0422	69.4	0.7716	0.8330
Brazil	2006	1.5278	0.5178	4293	0.3931	0.1604		11.8	0.4822	0.7973
Brazil	2009	1.5195	0.4795	5066	0.3938	0.1575	0.0863	13.9	0.5205	0.8071
Brazil	2011	1.3751	0.4464	5685	0.4082	0.1668	0.0938	15.6	0.5536	0.8358
Brazil	2013	1.4775	0.4422	6226	0.3985	0.1568	0.0853	17.1	0.5578	0.8240
Brazil	2016	1.2558	0.4381	5999	0.4169	0.1768		16.4	0.5619	0.8505
Canada	1971	1.3440	0.2545	15505	0.3689	0.1394	0.0760	42.5	0.7455	0.8176
Canada	1975	1.4970	0.2334	19762	0.3617	0.1243	0.0629	54.1	0.7666	0.8263
Canada	1981	1.6401	0.2382	21382	0.3603	0.1177	0.0567	58.6	0.7618	0.8270
Canada	1987	1.8090	0.2477	21833	0.3567	0.1105	0.0505	59.8	0.7523	0.8273
Canada	1991	1.8529	0.2465	21852	0.3558	0.1080	0.0486	59.9	0.7535	0.8295
Canada	1994	1.8724	0.2537	21667	0.3540	0.1084	0.0489	59.4	0.7463	0.8236
Canada	1996	1.6447	0.2561	20486	0.3666	0.1196	0.0575	56.1	0.7439	0.8336
Canada	1997	1.6361	0.2598	20688	0.3681	0.1205	0.0581	56.7	0.7402	0.8348
Canada	1998	1.5841	0.2586	21446	0.3695	0.1229	0.0602	58.8	0.7414	0.8364
Canada	1999	1.5728	0.2587	21987	0.3695	0.1238	0.0610	60.2	0.7413	0.8349
Canada	2000	1.6256	0.2672	22404	0.3706	0.1220	0.0590	61.4	0.7328	0.8367
Canada	2001	1.6382	0.2697	23155	0.3707	0.1217	0.0587	63.4	0.7303	0.8364
Canada	2002	1.6313	0.2688	23306	0.3702	0.1222	0.0592	63.9	0.7312	0.8345
Canada	2003	1.6524	0.2712	23132	0.3694	0.1216	0.0587	63.4	0.7288	0.8326
Canada	2004	1.6167	0.2719	23663	0.3711	0.1236	0.0603	64.8	0.7281	0.8340
Canada	2005	1.5816	0.2675	24312	0.3712	0.1250	0.0616	66.6	0.7325	0.8339
Canada	2006	1.6491	0.2730	24642	0.3705	0.1218	0.0587	67.5	0.7270	0.8346
Canada	2007	1.6732	0.2718	25671	0.3699	0.1201	0.0573	70.3	0.7282	0.8360
Canada	2008	1.6032	0.2718	26096	0.3720	0.1241	0.0607	71.5	0.7282	0.8355
Canada	2009	1.6133	0.2739	26147	0.3718	0.1241	0.0606	71.6	0.7261	0.8342
Canada	2010	1.6423	0.2707	26364	0.3705	0.1218	0.0587	72.2	0.7293	0.8353
Canada	2011	1.6532	0.2692	26760	0.3695	0.1211	0.0582	73.3	0.7308	0.8342
Canada	2012	1.5801	0.2685	27035	0.3709	0.1256	0.0622	74.1	0.7315	0.8314
Canada	2013	1.5436	0.2750	27341	0.3718	0.1299	0.0657	74.9	0.7250	0.8250
Canada	2014	1.5787	0.2633	27927	0.3703	0.1244	0.0613	76.5	0.7367	0.8339
Canada	2015	1.5286	0.2694	27981	0.3728	0.1287	0.0648	76.7	0.7306	0.8325
Canada	2016	1.6003	0.2610	28051	0.3692	0.1228	0.0600	76.9	0.7390	0.8340
Canada	2017	1.6096	0.2673	28726	0.3701	0.1234	0.0603	78.7	0.7328	0.8332
Canada	2018	1.6151	0.2594	29209	0.3688	0.1214	0.0589	80.0	0.7406	0.8358
Chile	1990	1.4631	0.5168	2865	0.4100	0.1629		7.9	0.4832	0.8390
Chile	1992	1.6542	0.5340	3259	0.3918	0.1475		8.9	0.4660	0.8125
Chile	1994	1.5180	0.5180	3699	0.3955	0.1611		10.1	0.4820	0.8029
Chile	1996	1.5062	0.5184	4184	0.4011	0.1609		11.5	0.4816	0.8181
Chile	1998	1.4957	0.5246	4404	0.4028	0.1623		12.1	0.4754	0.8201
Chile	2000	1.4081	0.5394	4671	0.4184	0.1693		12.8	0.4606	0.8515
Chile	2003	1.4881	0.5143	4676	0.4065	0.1608		12.8	0.4857	0.8329
Chile	2006	1.6177	0.4868	5274	0.3907	0.1478		14.5	0.5132	0.8130

Country	Year	ε	A_ε	EDEI	FGT_0	FGT_1	FGT_2	$/day	p	p*
Chile	2009	1.5460	0.4856	5759	0.4053	0.1507		15.8	0.5144	0.8456
Chile	2011	1.5881	0.4758	6077	0.4003	0.1469		16.6	0.5242	0.8391
Chile	2013	1.6688	0.4713	7116	0.3940	0.1403		19.5	0.5287	0.8331
Chile	2015	1.7377	0.4667	7543	0.3862	0.1356		20.7	0.5333	0.8221
Chile	2017	1.7027	0.4707	7982	0.3907	0.1380		21.9	0.5293	0.8286
China	2002	3.2665	0.6291	1215	0.1817	0.0559	0.0249	3.3	0.3709	0.5008
China	2013	1.6526	0.3940	5154	0.3627	0.1393	0.0742	14.1	0.6060	0.7678
Colombia	2001	1.2412	0.4757	3215	0.4221	0.1862		8.8	0.5243	0.8474
Colombia	2002	1.2240	0.4902	3091	0.4231	0.1937		8.5	0.5098	0.8384
Colombia	2003	1.2485	0.4688	3187	0.4189	0.1868	0.1122	8.7	0.5312	0.8369
Colombia	2004	1.2769	0.4853	3135	0.4177	0.1855		8.6	0.5147	0.8332
Colombia	2005	1.3046	0.4909	3358	0.4165	0.1818		9.2	0.5091	0.8344
Colombia	2006	1.3628	0.4831	3359	0.4083	0.1750	0.1015	9.2	0.5169	0.8208
Colombia	2007	1.2343	0.5036	3663	0.4217	0.1956	0.1205	10.0	0.4964	0.8301
Colombia	2008	1.2679	0.4931	3750	0.4164	0.1900	0.1155	10.3	0.5069	0.8223
Colombia	2009	1.3057	0.4814	3827	0.4125	0.1827	0.1087	10.5	0.5186	0.8220
Colombia	2010	1.3563	0.4931	3999	0.4071	0.1782	0.1048	11.0	0.5069	0.8118
Colombia	2011	1.3678	0.4805	4271	0.4048	0.1754	0.1024	11.7	0.5195	0.8105
Colombia	2012	1.3234	0.4601	4442	0.4075	0.1785	0.1054	12.2	0.5399	0.8156
Colombia	2013	1.3023	0.4555	4691	0.4100	0.1801	0.1067	12.9	0.5445	0.8211
Colombia	2014	1.3174	0.4550	4858	0.4081	0.1783	0.1052	13.3	0.5450	0.8182
Colombia	2015	1.3409	0.4375	4935	0.4046	0.1730	0.1005	13.5	0.5625	0.8178
Colombia	2016	1.3347	0.4287	4921	0.4058	0.1716	0.0991	13.5	0.5713	0.8243
Colombia	2017	1.3563	0.4217	4943	0.4035	0.1681	0.0960	13.5	0.5783	0.8237
Colombia	2018	1.3487	0.4260	4962	0.4042	0.1698	0.0975	13.6	0.5740	0.8227
Colombia	2019	1.3067	0.4376	4852	0.4086	0.1766	0.1035	13.3	0.5624	0.8241
Colombia	2020	1.2294	0.4514	4346	0.4178	0.1877	0.1135	11.9	0.5486	0.8347
Czech Rep.	1992	3.0761	0.1875	9223	0.3367	0.0646	0.0196	25.3	0.8125	0.8774
Czech Rep.	1996	2.6776	0.2500	10461	0.3374	0.0787	0.0280	28.7	0.7500	0.8438
Czech Rep.	2002	3.0267	0.2655	10942	0.3236	0.0714	0.0239	30.0	0.7346	0.8334
Czech Rep.	2004	2.4159	0.2494	12178	0.3478	0.0859	0.0322	33.4	0.7506	0.8488
Czech Rep.	2007	2.3738	0.2293	14572	0.3496	0.0849	0.0316	39.9	0.7707	0.8571
Czech Rep.	2010	2.3150	0.2340	15002	0.3507	0.0873	0.0332	41.1	0.7660	0.8543
Czech Rep.	2013	2.4134	0.2367	14659	0.3509	0.0844	0.0311	40.2	0.7633	0.8586
Czech Rep.	2016	2.4091	0.2336	16318	0.3459	0.0846	0.0316	44.7	0.7664	0.8506
Denmark	1987	1.5981	0.2006	21605	0.3448	0.1081	0.0515	59.2	0.7994	0.8394
Denmark	1992	1.6683	0.1863	21102	0.3414	0.1029	0.0475	57.8	0.8137	0.8405
Denmark	1995	2.2730	0.1858	22678	0.3414	0.0829	0.0313	62.1	0.8142	0.8575
Denmark	2000	2.2957	0.1939	23880	0.3419	0.0835	0.0315	65.4	0.8061	0.8549
Denmark	2004	2.1981	0.1943	25089	0.3440	0.0864	0.0335	68.7	0.8057	0.8543
Denmark	2007	1.9695	0.1916	26387	0.3485	0.0925	0.0381	72.3	0.8084	0.8575
Denmark	2010	1.9161	0.2024	26730	0.3520	0.0964	0.0406	73.2	0.7976	0.8546
Denmark	2013	1.9426	0.2074	25989	0.3535	0.0962	0.0402	71.2	0.7926	0.8554
Denmark	2016	1.9103	0.2120	26733	0.3551	0.0981	0.0415	73.2	0.7880	0.8546
Dominican Rep.	2007	1.3157	0.4973	3738	0.4182	0.1793		10.2	0.5027	0.8421
Egypt	1999	3.8006	0.3602	5125	0.2993	0.0601	0.0181	14.0	0.6398	0.8053
Egypt	2004	3.3517	0.3536	4737	0.3086	0.0679	0.0223	13.0	0.6464	0.8035
Egypt	2008	3.3064	0.3294	4864	0.3141	0.0682	0.0223	13.3	0.6706	0.8152
Egypt	2010	3.0709	0.3111	5066	0.3279	0.0727	0.0243	13.9	0.6889	0.8305
Egypt	2012	3.1138	0.3006	5350	0.3279	0.0713	0.0234	14.7	0.6994	0.8345
Egypt	2015	3.4404	0.3478	5459	0.3047	0.0659	0.0214	15.0	0.6522	0.8024
Egypt	2017	3.1887	0.3136	5226	0.3209	0.0702	0.0231	14.3	0.6864	0.8242
Estonia	2000	1.8535	0.3480	5530	0.3678	0.1194	0.0558	15.2	0.6520	0.8184
Estonia	2004	1.6520	0.3166	7353	0.3749	0.1286	0.0634	20.1	0.6834	0.8248
Estonia	2007	1.7529	0.2838	11141	0.3615	0.1189	0.0567	30.5	0.7162	0.8163
Estonia	2010	1.6688	0.2853	10040	0.3664	0.1240	0.0607	27.5	0.7148	0.8185
Estonia	2013	1.5599	0.3191	11326	0.3743	0.1368	0.0709	31.0	0.6809	0.8104
Finland	1987	2.2714	0.1733	17503	0.3396	0.0808	0.0302	48.0	0.8267	0.8619

Country	Year	ε	A_ε	EDEI	FGT_0	FGT_1	FGT_2	$/day	p	p*
Finland	1991	2.1987	0.1733	19394	0.3413	0.0825	0.0314	53.1	0.8267	0.8630
Finland	1995	2.5746	0.1919	17287	0.3412	0.0755	0.0261	47.4	0.8081	0.8664
Finland	2000	2.4443	0.2310	18722	0.3445	0.0834	0.0308	51.3	0.7691	0.8509
Finland	2004	2.2986	0.2338	21156	0.3480	0.0881	0.0340	58.0	0.7662	0.8485
Finland	2007	2.1787	0.2355	23069	0.3506	0.0924	0.0369	63.2	0.7645	0.8460
Finland	2010	2.2533	0.2379	23554	0.3465	0.0904	0.0356	64.5	0.7621	0.8417
Finland	2013	2.3007	0.2385	23571	0.3459	0.0888	0.0345	64.6	0.7615	0.8431
Finland	2016	2.3016	0.2321	24014	0.3510	0.0875	0.0333	65.8	0.7679	0.8550
France	1970	2.6150	0.3863	10323	0.3067	0.0869	0.0359	28.3	0.6137	0.7513
France	1975	1.7526	0.2821	14912	0.3745	0.1148	0.0524	40.9	0.7179	0.8526
France	1978	1.5870	0.2617	17166	0.3714	0.1215	0.0590	47.0	0.7383	0.8448
France	1979	1.9354	0.2646	16842	0.3668	0.1041	0.0445	46.1	0.7354	0.8538
France	1984	2.0066	0.2676	17519	0.3646	0.1017	0.0427	48.0	0.7324	0.8520
France	1989	1.8012	0.2397	17475	0.3636	0.1070	0.0476	47.9	0.7603	0.8509
France	1990	2.2933	0.2723	18374	0.3528	0.0919	0.0360	50.3	0.7277	0.8440
France	1994	2.2244	0.2724	18886	0.3528	0.0946	0.0380	51.7	0.7276	0.8396
France	1996	1.9463	0.2537	19390	0.3613	0.1033	0.0444	53.1	0.7463	0.8459
France	1997	1.9547	0.2547	19435	0.3608	0.1032	0.0442	53.2	0.7453	0.8449
France	1998	2.0520	0.2555	19875	0.3578	0.0993	0.0414	54.5	0.7445	0.8448
France	1999	2.0089	0.2621	20167	0.3622	0.1014	0.0426	55.3	0.7379	0.8488
France	2000	2.0011	0.2655	20537	0.3635	0.1019	0.0429	56.3	0.7345	0.8499
France	2001	2.0499	0.2650	20983	0.3616	0.1000	0.0416	57.5	0.7350	0.8491
France	2002	2.1841	0.2686	21500	0.3571	0.0954	0.0383	58.9	0.7314	0.8468
France	2003	2.1300	0.2628	21485	0.3587	0.0967	0.0393	58.9	0.7372	0.8488
France	2004	2.1127	0.2607	21521	0.3607	0.0968	0.0393	59.0	0.7393	0.8528
France	2005	1.7824	0.2521	22025	0.3691	0.1077	0.0478	60.3	0.7479	0.8611
France	2006	1.7968	0.2556	22349	0.3697	0.1078	0.0477	61.2	0.7444	0.8603
France	2007	1.7814	0.2543	22710	0.3693	0.1084	0.0483	62.2	0.7457	0.8592
France	2008	1.7941	0.2543	23219	0.3701	0.1067	0.0470	63.6	0.7458	0.8649
France	2009	1.7282	0.2544	23180	0.3697	0.1108	0.0503	63.5	0.7456	0.8585
France	2010	1.7501	0.2616	23074	0.3715	0.1108	0.0500	63.2	0.7384	0.8593
France	2011	1.7336	0.2673	22930	0.3732	0.1124	0.0511	62.8	0.7327	0.8592
France	2012	1.7150	0.2633	22730	0.3723	0.1126	0.0514	62.3	0.7367	0.8591
France	2013	1.8308	0.2567	22785	0.3690	0.1069	0.0469	62.4	0.7434	0.8584
France	2014	1.7760	0.2517	22833	0.3686	0.1084	0.0483	62.6	0.7483	0.8587
France	2015	1.7933	0.2549	22960	0.3694	0.1080	0.0479	62.9	0.7451	0.8593
France	2016	1.7473	0.2497	23143	0.3682	0.1093	0.0493	63.4	0.7503	0.8581
France	2017	1.7463	0.2496	23291	0.3682	0.1093	0.0493	63.8	0.7504	0.8583
France	2018	1.7594	0.2553	23132	0.3696	0.1097	0.0493	63.4	0.7447	0.8580
Georgia	2009	1.3320	0.4319	2446	0.4024	0.1745	0.1024	6.7	0.5681	0.8097
Georgia	2010	1.4249	0.4300	2558	0.3910	0.1644	0.0939	7.0	0.5700	0.7940
Georgia	2011	1.3877	0.4245	2693	0.4017	0.1649	0.0930	7.4	0.5755	0.8231
Georgia	2012	1.5300	0.3907	3121	0.3821	0.1487	0.0803	8.6	0.6093	0.7999
Georgia	2013	2.5001	0.5169	2880	0.2688	0.0899	0.0426	7.9	0.4831	0.6339
Georgia	2014	1.5299	0.3654	4085	0.3818	0.1453	0.0773	11.2	0.6346	0.8078
Georgia	2015	1.8020	0.3928	3941	0.3576	0.1278	0.0642	10.8	0.6072	0.7760
Georgia	2016	2.0399	0.4429	3764	0.3209	0.1143	0.0571	10.3	0.5571	0.7106
Georgia	2017	1.3209	0.3572	4197	0.3976	0.1617	0.0916	11.5	0.6428	0.8274
Georgia	2018	1.6566	0.3572	4072	0.3626	0.1350	0.0704	11.2	0.6428	0.7802
Georgia	2019	1.6580	0.3632	4290	0.3663	0.1355	0.0703	11.8	0.6368	0.7870
Germany	1973	1.9206	0.2351	21779	0.3624	0.1004	0.0425	59.7	0.7650	0.8587
Germany	1978	2.2758	0.2376	24708	0.3538	0.0887	0.0340	67.7	0.7624	0.8569
Germany	1981	2.2736	0.2198	21204	0.3477	0.0873	0.0335	58.1	0.7803	0.8524
Germany	1983	2.8400	0.2716	23618	0.3212	0.0760	0.0271	64.7	0.7284	0.8200
Germany	1984	1.8801	0.2111	20617	0.3550	0.0991	0.0424	56.5	0.7889	0.8538
Germany	1985	1.9431	0.2111	20586	0.3530	0.0974	0.0410	56.4	0.7889	0.8505
Germany	1986	2.0605	0.2117	21639	0.3514	0.0932	0.0378	59.3	0.7883	0.8528
Germany	1987	2.0219	0.2145	22199	0.3533	0.0948	0.0389	60.8	0.7855	0.8535

Country	*Year*	*ε*	A_ε	*EDEI*	FGT_0	FGT_1	FGT_2	*$/day*	*p*	*p**
Germany	1988	2.0385	0.2163	23077	0.3549	0.0940	0.0382	63.2	0.7837	0.8572
Germany	1989	2.0673	0.2178	23331	0.3552	0.0931	0.0375	63.9	0.7822	0.8587
Germany	1990	2.1816	0.2311	24077	0.3502	0.0918	0.0365	66.0	0.7689	0.8472
Germany	1991	2.3197	0.2587	21511	0.3378	0.0905	0.0362	58.9	0.7413	0.8229
Germany	1992	2.1598	0.2393	22339	0.3494	0.0938	0.0380	61.2	0.7607	0.8410
Germany	1993	2.2225	0.2334	22459	0.3482	0.0908	0.0359	61.5	0.7666	0.8449
Germany	1994	1.9558	0.2256	22148	0.3569	0.0989	0.0417	60.7	0.7744	0.8514
Germany	1995	1.9282	0.2165	22540	0.3565	0.0979	0.0413	61.8	0.7835	0.8560
Germany	1996	2.0920	0.2187	22706	0.3539	0.0927	0.0372	62.2	0.7813	0.8563
Germany	1997	2.0848	0.2190	22361	0.3543	0.0929	0.0373	61.3	0.7810	0.8566
Germany	1998	2.1475	0.2226	22891	0.3533	0.0913	0.0362	62.7	0.7774	0.8558
Germany	1999	2.0216	0.2254	23434	0.3581	0.0956	0.0391	64.2	0.7746	0.8587
Germany	2000	2.0363	0.2233	23776	0.3563	0.0951	0.0389	65.1	0.7767	0.8562
Germany	2001	1.9825	0.2305	23523	0.3621	0.0966	0.0397	64.4	0.7695	0.8652
Germany	2002	1.9987	0.2325	23785	0.3593	0.0976	0.0404	65.2	0.7675	0.8562
Germany	2003	1.9024	0.2253	23635	0.3600	0.0998	0.0424	64.8	0.7747	0.8582
Germany	2004	2.0370	0.2363	23493	0.3582	0.0970	0.0399	64.4	0.7637	0.8534
Germany	2005	2.0336	0.2543	22864	0.3606	0.0994	0.0413	62.6	0.7457	0.8502
Germany	2006	2.0395	0.2538	23117	0.3595	0.0993	0.0413	63.3	0.7462	0.8484
Germany	2007	2.0851	0.2553	23210	0.3588	0.0977	0.0401	63.6	0.7447	0.8490
Germany	2008	2.0700	0.2550	23071	0.3590	0.0982	0.0405	63.2	0.7450	0.8486
Germany	2009	2.0782	0.2573	23051	0.3544	0.0989	0.0413	63.2	0.7427	0.8385
Germany	2010	2.0512	0.2591	23282	0.3553	0.1002	0.0422	63.8	0.7409	0.8379
Germany	2011	2.1028	0.2612	23233	0.3558	0.0981	0.0405	63.7	0.7388	0.8416
Germany	2012	2.0901	0.2642	23033	0.3552	0.0991	0.0413	63.1	0.7358	0.8385
Germany	2013	2.1631	0.2715	22930	0.3524	0.0971	0.0399	62.8	0.7285	0.8352
Germany	2014	1.9395	0.2560	23372	0.3582	0.1047	0.0456	64.0	0.7441	0.8373
Germany	2015	1.9151	0.2542	24146	0.3621	0.1048	0.0454	66.2	0.7458	0.8454
Germany	2016	1.9280	0.2568	24582	0.3609	0.1048	0.0455	67.3	0.7432	0.8422
Germany	2017	1.6768	0.2399	25073	0.3645	0.1132	0.0528	68.7	0.7601	0.8461
Germany	2018	1.8481	0.2501	25840	0.3651	0.1065	0.0468	70.8	0.7499	0.8511
Germany	2019	1.7931	0.2448	26531	0.3648	0.1082	0.0483	72.7	0.7552	0.8503
Greece	1995	1.4686	0.2983	12577	0.3801	0.1387	0.0726	34.5	0.7017	0.8270
Greece	2000	1.7083	0.3050	13897	0.3645	0.1246	0.0611	38.1	0.6950	0.8098
Greece	2004	1.7755	0.2959	17193	0.3669	0.1184	0.0556	47.1	0.7041	0.8263
Greece	2007	1.8590	0.2873	18028	0.3630	0.1127	0.0513	49.4	0.7127	0.8284
Greece	2010	1.5800	0.2743	16575	0.3724	0.1264	0.0626	45.4	0.7257	0.8324
Greece	2013	1.5849	0.2867	11191	0.3735	0.1287	0.0642	30.7	0.7133	0.8278
Greece	2016	1.6064	0.2697	11956	0.3717	0.1234	0.0602	32.8	0.7303	0.8367
Guatemala	2006	2.1485	0.5853	3363	0.3000	0.1120	0.0577	9.2	0.4147	0.6394
Guatemala	2011	1.2621	0.4733	3299	0.4177	0.1861	0.1115	9.0	0.5267	0.8337
Guatemala	2014	1.9721	0.4064	3551	0.3619	0.1173	0.0543	9.7	0.5936	0.8023
Hungary	1991	1.8042	0.2460	9216	0.3648	0.1080	0.0481	25.3	0.7540	0.8499
Hungary	1994	1.7369	0.2936	7428	0.3773	0.1171	0.0539	20.4	0.7064	0.8528
Hungary	1999	2.3282	0.2810	6793	0.3520	0.0915	0.0357	18.6	0.7190	0.8416
Hungary	2005	2.2961	0.2686	9046	0.3570	0.0910	0.0351	24.8	0.7314	0.8531
Hungary	2007	2.2704	0.2420	9174	0.3541	0.0894	0.0344	25.1	0.7580	0.8553
Hungary	2009	2.1037	0.2430	8788	0.3580	0.0953	0.0385	24.1	0.7570	0.8535
Hungary	2012	1.8996	0.2539	8481	0.3585	0.1064	0.0469	23.2	0.7461	0.8356
Hungary	2015	2.3448	0.2547	10707	0.3439	0.0890	0.0347	29.3	0.7453	0.8363
Iceland	2004	2.1084	0.2125	24335	0.3579	0.0893	0.0348	66.7	0.7875	0.8723
Iceland	2007	2.1667	0.2422	28730	0.3630	0.0915	0.0355	78.7	0.7578	0.8688
Iceland	2010	2.0025	0.2019	23848	0.3532	0.0922	0.0374	65.3	0.7981	0.8636
India	2004	1.5103	0.4952	1580	0.3938	0.1603	0.0889	4.3	0.5048	0.8013
India	2011	1.4821	0.5051	2236	0.3993	0.1634		6.1	0.4949	0.8106
Iraq	2007	1.6153	0.3435	7474	0.3875	0.1312	0.0644	20.5	0.6565	0.8469
Iraq	2012	1.4974	0.3283	8040	0.3851	0.1407	0.0733	22.0	0.6717	0.8296
Ireland	1987	1.9260	0.3078	9591	0.3586	0.1119	0.0508	26.3	0.6922	0.8172

Country	Year	ε	A_ε	EDEI	FGT_0	FGT_1	FGT_2	$/day	p	p*
Ireland	1994	2.5535	0.3748	11644	0.3144	0.0890	0.0367	31.9	0.6252	0.7637
Ireland	1995	2.6859	0.3931	11671	0.3016	0.0846	0.0346	32.0	0.6069	0.7455
Ireland	1996	2.8735	0.4008	12013	0.2810	0.0776	0.0313	32.9	0.5992	0.7207
Ireland	2000	2.0013	0.2989	17497	0.3478	0.1075	0.0484	47.9	0.7011	0.8046
Ireland	2002	1.6989	0.2672	20127	0.3638	0.1193	0.0571	55.1	0.7328	0.8240
Ireland	2003	2.1913	0.3222	19297	0.3390	0.1007	0.0436	52.9	0.6778	0.7960
Ireland	2004	2.5593	0.3554	18721	0.3096	0.0876	0.0362	51.3	0.6446	0.7610
Ireland	2005	2.9131	0.3764	19074	0.2888	0.0767	0.0299	52.3	0.6236	0.7431
Ireland	2006	2.0400	0.3016	22880	0.3516	0.1057	0.0465	62.7	0.6985	0.8146
Ireland	2007	2.3111	0.3005	22260	0.3381	0.0942	0.0388	61.0	0.6995	0.8095
Ireland	2008	2.1291	0.2820	20909	0.3486	0.0999	0.0423	57.3	0.7180	0.8219
Ireland	2009	1.8546	0.2784	20520	0.3665	0.1109	0.0497	56.2	0.7216	0.8401
Ireland	2010	1.7796	0.2617	20201	0.3645	0.1130	0.0518	55.3	0.7383	0.8365
Ireland	2011	1.7883	0.2688	19299	0.3646	0.1137	0.0523	52.9	0.7312	0.8340
Ireland	2012	1.8606	0.2788	19164	0.3632	0.1114	0.0503	52.5	0.7212	0.8323
Ireland	2013	1.8554	0.2775	19612	0.3647	0.1112	0.0500	53.7	0.7225	0.8360
Ireland	2014	2.0167	0.2761	20417	0.3542	0.1040	0.0451	55.9	0.7239	0.8267
Ireland	2015	1.9158	0.2656	21440	0.3605	0.1069	0.0471	58.7	0.7344	0.8364
Ireland	2016	2.1264	0.2949	21699	0.3515	0.1010	0.0428	59.4	0.7051	0.8233
Ireland	2017	2.1626	0.2732	23619	0.3501	0.0975	0.0404	64.7	0.7268	0.8301
Ireland	2018	2.8570	0.3119	23149	0.3136	0.0774	0.0285	63.4	0.6881	0.7977
Israel	1986	3.3834	0.4343	7923	0.2293	0.0604	0.0236	21.7	0.5657	0.6589
Israel	1992	3.7421	0.4530	9086	0.2062	0.0518	0.0194	24.9	0.5470	0.6363
Israel	1997	1.8236	0.3216	11519	0.3579	0.1195	0.0573	31.6	0.6784	0.8012
Israel	2001	2.4290	0.4050	11440	0.3014	0.0933	0.0416	31.3	0.5951	0.7221
Israel	2002	1.7318	0.3396	11488	0.3609	0.1275	0.0639	31.5	0.6604	0.7916
Israel	2003	2.1227	0.4096	10501	0.3142	0.1075	0.0521	28.8	0.5904	0.7165
Israel	2004	1.7946	0.3825	11379	0.3465	0.1271	0.0653	31.2	0.6175	0.7537
Israel	2005	1.6597	0.3656	12187	0.3659	0.1356	0.0704	33.4	0.6345	0.7855
Israel	2006	2.1913	0.4382	11035	0.3051	0.1047	0.0508	30.2	0.5618	0.6970
Israel	2007	1.8603	0.3854	12676	0.3418	0.1228	0.0620	34.7	0.6146	0.7506
Israel	2008	1.9915	0.4124	12455	0.3288	0.1160	0.0576	34.1	0.5876	0.7304
Israel	2009	1.8389	0.4016	12593	0.3426	0.1255	0.0643	34.5	0.5984	0.7447
Israel	2010	1.8863	0.4005	12926	0.3409	0.1223	0.0616	35.4	0.5995	0.7471
Israel	2011	1.8672	0.3878	13217	0.3396	0.1224	0.0620	36.2	0.6122	0.7461
Israel	2012	1.6610	0.3629	14502	0.3617	0.1353	0.0708	39.7	0.6371	0.7767
Israel	2013	1.6051	0.3367	15759	0.3674	0.1364	0.0713	43.2	0.6633	0.7919
Israel	2014	1.6587	0.3466	15764	0.3602	0.1336	0.0696	43.2	0.6534	0.7785
Israel	2015	1.5683	0.3261	16779	0.3701	0.1378	0.0723	46.0	0.6739	0.7976
Israel	2016	1.8806	0.3637	16086	0.3353	0.1192	0.0599	44.1	0.6363	0.7469
Israel	2017	1.5346	0.3067	18436	0.3692	0.1377	0.0725	50.5	0.6933	0.7993
Israel	2018	1.5764	0.3040	19076	0.3698	0.1337	0.0688	52.3	0.6960	0.8074
Italy	1986	2.0985	0.2994	14020	0.3461	0.1030	0.0448	38.4	0.7006	0.8092
Italy	1987	1.4913	0.2911	15535	0.3786	0.1352	0.0697	42.6	0.7089	0.8308
Italy	1989	2.8804	0.3617	15245	0.2868	0.0767	0.0302	41.8	0.6383	0.7423
Italy	1991	2.0952	0.2791	17222	0.3446	0.1012	0.0438	47.2	0.7209	0.8128
Italy	1993	1.4224	0.2884	16290	0.3793	0.1405	0.0746	44.6	0.7116	0.8260
Italy	1995	1.5155	0.2860	15826	0.3764	0.1329	0.0678	43.4	0.7140	0.8296
Italy	1998	1.4033	0.2818	16878	0.3783	0.1387	0.0736	46.2	0.7182	0.8322
Italy	2000	1.5585	0.2802	17212	0.3749	0.1284	0.0641	47.2	0.7198	0.8344
Italy	2004	1.6311	0.2850	17280	0.3742	0.1243	0.0603	47.3	0.7150	0.8370
Italy	2008	1.6237	0.2766	17973	0.3728	0.1235	0.0599	49.2	0.7234	0.8371
Italy	2010	1.3991	0.2666	17597	0.3732	0.1362	0.0722	48.2	0.7334	0.8293
Italy	2014	1.3697	0.2632	15967	0.3723	0.1388	0.0747	43.7	0.7368	0.8234
Italy	2016	1.3080	0.2716	16434	0.3747	0.1451	0.0806	45.0	0.7284	0.8203
Ivory Coast	2002	1.1844	0.5301	1780	0.4335	0.2017		4.9	0.4699	0.8569
Ivory Coast	2008	1.3098	0.4958	1793	0.4150	0.1828		4.9	0.5042	0.8281
Ivory Coast	2015	1.1646	0.5366	1895	0.4362	0.2056		5.2	0.4634	0.8605

Country	*Year*	*ε*	*A_ε*	*EDEI*	*FGT_0*	*FGT_1*	*FGT_2*	*$/day*	*p*	*p**
Japan	2008	1.5147	0.2772	19357	0.3746	0.1314	0.0668	53.0	0.7228	0.8302
Japan	2010	1.8624	0.2748	21648	0.3637	0.1106	0.0497	59.3	0.7252	0.8353
Japan	2013	1.5341	0.2608	20844	0.3713	0.1241	0.0615	57.1	0.7392	0.8435
Jordan	2002	2.0427	0.3956	5787	0.3517	0.1130	0.0519	15.9	0.6044	0.7891
Jordan	2006	2.8967	0.4658	5250	0.2790	0.0786	0.0321	14.4	0.5342	0.7012
Jordan	2008	2.2997	0.3936	6286	0.3431	0.1004	0.0426	17.2	0.6064	0.7946
Jordan	2010	2.0721	0.3762	7163	0.3597	0.1097	0.0484	19.6	0.6239	0.8140
Jordan	2013	1.8074	0.3468	6901	0.3719	0.1217	0.0574	18.9	0.6532	0.8240
Lithuania	2009	1.4407	0.3110	9174	0.3850	0.1417	0.0747	25.1	0.6890	0.8335
Lithuania	2010	1.6225	0.2873	8435	0.3692	0.1272	0.0632	23.1	0.7127	0.8195
Lithuania	2011	1.9647	0.3148	8802	0.3460	0.1109	0.0514	24.1	0.6852	0.7925
Lithuania	2012	1.7907	0.3257	9204	0.3660	0.1214	0.0579	25.2	0.6743	0.8147
Lithuania	2013	1.8936	0.3424	9461	0.3586	0.1173	0.0551	25.9	0.6576	0.8033
Lithuania	2014	1.7292	0.3553	10142	0.3702	0.1286	0.0635	27.8	0.6447	0.8082
Lithuania	2015	1.6948	0.3464	11094	0.3693	0.1304	0.0653	30.4	0.6536	0.8045
Lithuania	2016	1.6057	0.3437	11788	0.3771	0.1360	0.0695	32.3	0.6563	0.8142
Lithuania	2017	1.5799	0.3361	12729	0.3775	0.1371	0.0706	34.9	0.6639	0.8146
Lithuania	2018	1.6371	0.3305	13709	0.3723	0.1324	0.0670	37.6	0.6695	0.8105
Luxembourg	1985	3.0952	0.2589	18458	0.3024	0.0688	0.0237	50.6	0.7411	0.8083
Luxembourg	1991	5.3321	0.3758	22310	0.1814	0.0338	0.0098	61.1	0.6242	0.6902
Luxembourg	1994	3.3225	0.2662	28110	0.2955	0.0645	0.0214	77.0	0.7338	0.8058
Luxembourg	1997	2.9893	0.2884	27970	0.3053	0.0727	0.0260	76.6	0.7116	0.7984
Luxembourg	2000	4.9724	0.4116	24952	0.1808	0.0363	0.0112	68.4	0.5884	0.6647
Luxembourg	2004	2.2010	0.2481	36144	0.3513	0.0931	0.0372	99.0	0.7519	0.8438
Luxembourg	2007	2.3540	0.2640	35458	0.3469	0.0894	0.0347	97.1	0.7360	0.8391
Luxembourg	2010	2.4657	0.2701	34567	0.3316	0.0865	0.0337	94.7	0.7299	0.8173
Luxembourg	2013	2.1581	0.2627	34189	0.3468	0.0968	0.0402	93.7	0.7373	0.8272
Luxembourg	2015	1.8653	0.2421	35363	0.3619	0.1051	0.0459	96.9	0.7579	0.8482
Luxembourg	2016	1.8580	0.2446	38471	0.3616	0.1061	0.0467	105.4	0.7554	0.8453
Luxembourg	2017	1.6767	0.2507	35765	0.3673	0.1153	0.0540	98.0	0.7493	0.8448
Luxembourg	2018	1.7772	0.2636	37241	0.3686	0.1120	0.0508	102.0	0.7364	0.8471
Luxembourg	2019	2.8923	0.3394	32928	0.2959	0.0765	0.0293	90.2	0.6606	0.7641
Mali	2011	1.4645	0.4328	1471	0.3933	0.1591	0.0883	4.0	0.5672	0.8078
Mali	2013	1.5837	0.3920	1823	0.3928	0.1399	0.0708	5.0	0.6080	0.8398
Mali	2014	1.6211	0.3134	1925	0.3784	0.1293	0.0638	5.3	0.6866	0.8327
Mali	2015	1.7233	0.3200	2171	0.3660	0.1253	0.0615	5.9	0.6801	0.8092
Mali	2016	1.6762	0.3213	2168	0.3739	0.1276	0.0626	5.9	0.6787	0.8232
Mali	2017	1.6178	0.2992	2363	0.3701	0.1295	0.0650	6.5	0.7008	0.8154
Mali	2018	1.7647	0.3135	2805	0.3666	0.1215	0.0581	7.7	0.6865	0.8176
Mali	2019	1.5429	0.3290	2454	0.3842	0.1368	0.0698	6.7	0.6710	0.8332
Mali	2020	1.7441	0.3459	2267	0.3733	0.1259	0.0609	6.2	0.6541	0.8207
Mexico	1984	1.7602	0.4516	3384	0.3617	0.1355	0.0703	9.3	0.5485	0.7647
Mexico	1989	1.6330	0.4681	3619	0.3829	0.1462	0.0772	9.9	0.5319	0.7975
Mexico	1992	1.6801	0.5189	3728	0.3781	0.1462		10.2	0.4811	0.7809
Mexico	1994	1.9512	0.5684	3415	0.3397	0.1274	0.0657	9.4	0.4316	0.7116
Mexico	1996	1.7827	0.5214	2807	0.3646	0.1381	0.0720	7.7	0.4786	0.7601
Mexico	1998	1.5783	0.5218	3016	0.3779	0.1571	0.0883	8.3	0.4782	0.7610
Mexico	2000	1.8579	0.5614	3282	0.3402	0.1338	0.0718	9.0	0.4387	0.6995
Mexico	2002	1.9171	0.5329	3473	0.3393	0.1281	0.0666	9.5	0.4671	0.7129
Mexico	2004	1.5386	0.4636	4197	0.3907	0.1544	0.0839	11.5	0.5364	0.8051
Mexico	2005	1.5245	0.4543	4635	0.3923	0.1546	0.0839	12.7	0.5457	0.8099
Mexico	2006	1.7042	0.4603	5062	0.3810	0.1391	0.0708	13.9	0.5397	0.8048
Mexico	2008	1.6847	0.4918	4702	0.3677	0.1447	0.0780	12.9	0.5082	0.7589
Mexico	2010	1.4997	0.4360	4626	0.3924	0.1554	0.0848	12.7	0.5641	0.8108
Mexico	2012	1.6117	0.4673	4557	0.3828	0.1484	0.0792	12.5	0.5327	0.7938
Mexico	2014	1.6325	0.4544	4403	0.3880	0.1439	0.0744	12.1	0.5456	0.8152
Mexico	2016	1.6384	0.4220	5188	0.3843	0.1410	0.0724	14.2	0.5780	0.8137
Mexico	2018	1.6518	0.4073	5352	0.3835	0.1383	0.0702	14.7	0.5927	0.8175

Country	Year	ε	A_ε	EDEI	FGT_0	FGT_1	FGT_2	$/day	p	p*
Netherlands	1983	1.8334	0.2111	17149	0.3554	0.1006	0.0437	47.0	0.7889	0.8540
Netherlands	1987	2.6689	0.2198	17697	0.3358	0.0765	0.0268	48.5	0.7803	0.8507
Netherlands	1990	1.8527	0.2198	21009	0.3581	0.1014	0.0439	57.6	0.7802	0.8542
Netherlands	1993	1.6268	0.2108	19601	0.3536	0.1118	0.0531	53.7	0.7892	0.8345
Netherlands	1999	2.1760	0.1997	22939	0.3468	0.0876	0.0342	62.8	0.8003	0.8556
Netherlands	2004	1.9643	0.2209	22981	0.3589	0.0965	0.0399	63.0	0.7791	0.8619
Netherlands	2007	2.2707	0.2437	25173	0.3587	0.0888	0.0338	69.0	0.7563	0.8639
Netherlands	2010	2.4107	0.2360	24663	0.3466	0.0848	0.0316	67.6	0.7640	0.8510
Netherlands	2013	2.0993	0.2278	23809	0.3572	0.0932	0.0373	65.2	0.7722	0.8592
Netherlands	2015	2.0581	0.2364	25219	0.3571	0.0963	0.0395	69.1	0.7636	0.8523
Netherlands	2016	2.0081	0.2361	26081	0.3577	0.0983	0.0410	71.5	0.7639	0.8506
Netherlands	2017	1.8983	0.2312	26268	0.3607	0.1013	0.0433	72.0	0.7688	0.8551
Netherlands	2018	1.9876	0.2319	26310	0.3584	0.0983	0.0410	72.1	0.7681	0.8534
Norway	1979	2.0448	0.1833	14577	0.3458	0.0884	0.0353	39.9	0.8168	0.8607
Norway	1986	2.0552	0.1966	19245	0.3486	0.0908	0.0366	52.7	0.8034	0.8562
Norway	1991	1.9852	0.1874	20031	0.3478	0.0905	0.0368	54.9	0.8126	0.8622
Norway	1995	1.8390	0.1886	19718	0.3464	0.0956	0.0411	54.0	0.8114	0.8562
Norway	2000	1.8620	0.1971	23367	0.3496	0.0948	0.0402	64.0	0.8029	0.8643
Norway	2004	1.8378	0.2020	25260	0.3508	0.0961	0.0412	69.2	0.7980	0.8648
Norway	2007	1.7019	0.1957	28692	0.3453	0.1018	0.0463	78.6	0.8043	0.8495
Norway	2010	1.6571	0.1966	29795	0.3443	0.1042	0.0483	81.6	0.8034	0.8451
Norway	2013	1.6389	0.2017	32339	0.3470	0.1063	0.0497	88.6	0.7983	0.8443
Norway	2016	1.6028	0.2074	32073	0.3484	0.1090	0.0518	87.9	0.7926	0.8425
Norway	2019	1.5743	0.2084	32852	0.3484	0.1109	0.0535	90.0	0.7916	0.8391
Palestine	2010	1.8423	0.4510	5656	0.3411	0.1287	0.0673	15.5	0.5490	0.7272
Palestine	2011	2.7937	0.5938	4219	0.2106	0.0708	0.0339	11.6	0.4062	0.5287
Palestine	2017	1.4117	0.4001	6878	0.3858	0.1627	0.0935	18.8	0.5999	0.7862
Panama	2007	2.0871	0.6245	4536	0.2743	0.1110	0.0613	12.4	0.3755	0.5617
Panama	2010	1.5422	0.4881	6621	0.3739	0.1585	0.0907	18.1	0.5119	0.7509
Panama	2013	1.7026	0.5093	7142	0.3512	0.1440	0.0802	19.6	0.4907	0.7142
Panama	2016	1.6543	0.4945	8570	0.3556	0.1475	0.0829	23.5	0.5055	0.7210
Paraguay	1997	1.1595	0.5009	5870	0.4253	0.2113	0.1368	16.1	0.4991	0.8203
Paraguay	1999	1.1996	0.4869	5086	0.4230	0.1994	0.1244	13.9	0.5131	0.8305
Paraguay	2000	1.1911	0.4957	5369	0.4260	0.2007	0.1253	14.7	0.5043	0.8376
Paraguay	2002	1.1826	0.5079	4015	0.4277	0.2045	0.1289	11.0	0.4921	0.8367
Paraguay	2003	1.3510	0.5209	4350	0.4125	0.1804		11.9	0.4791	0.8218
Paraguay	2004	1.4759	0.4950	4496	0.3987	0.1634		12.3	0.5050	0.8098
Paraguay	2005	1.3172	0.4652	5251	0.4142	0.1760		14.4	0.5348	0.8383
Paraguay	2006	1.4013	0.4833	4590	0.4024	0.1715	0.0988	12.6	0.5168	0.8091
Paraguay	2007	1.3353	0.4651	5193	0.4111	0.1751	0.1014	14.2	0.5349	0.8303
Paraguay	2008	1.5397	0.4780	5012	0.3865	0.1566	0.0866	13.7	0.5220	0.7891
Paraguay	2009	1.2945	0.4370	5333	0.4078	0.1792	0.1063	14.6	0.5630	0.8179
Paraguay	2010	1.3211	0.4602	5627	0.4090	0.1781	0.1048	15.4	0.5398	0.8204
Paraguay	2011	1.2350	0.4729	5889	0.4204	0.1895	0.1147	16.1	0.5271	0.8375
Paraguay	2012	1.3264	0.4303	6232	0.4024	0.1751	0.1030	17.1	0.5697	0.8093
Paraguay	2013	1.4347	0.4606	6739	0.3973	0.1654	0.0937	18.5	0.5394	0.8062
Paraguay	2014	1.3692	0.4637	6823	0.4076	0.1713	0.0980	18.7	0.5363	0.8259
Paraguay	2015	1.4279	0.4623	6595	0.3955	0.1671	0.0957	18.1	0.5377	0.7986
Paraguay	2016	1.4849	0.4747	6188	0.3902	0.1623	0.0916	17.0	0.5253	0.7904
Paraguay	2017	1.6306	0.4702	6307	0.3780	0.1474	0.0790	17.3	0.5298	0.7829
Paraguay	2018	1.5314	0.4453	6823	0.3848	0.1546	0.0851	18.7	0.5547	0.7913
Paraguay	2019	1.6361	0.4620	6522	0.3676	0.1469	0.0803	17.9	0.5380	0.7578
Paraguay	2020	1.4806	0.4239	6120	0.3892	0.1570	0.0870	16.8	0.5761	0.8013
Peru	2004	0.9692	0.4515	3049	0.4397	0.2343	0.1615	8.4	0.5485	0.8495
Peru	2007	1.1117	0.4526	3725	0.4249	0.2116	0.1379	10.2	0.5475	0.8235
Peru	2010	1.0710	0.4004	4648	0.4198	0.2034	0.1314	12.7	0.5996	0.8305
Peru	2011	1.0499	0.3858	4765	0.4168	0.2035	0.1325	13.1	0.6142	0.8254
Peru	2012	1.0531	0.3836	5175	0.4157	0.2019	0.1311	14.2	0.6164	0.8254

Country	*Year*	*ε*	A_ε	*EDEI*	FGT_0	FGT_1	FGT_2	*$/day*	*p*	*p**
Peru	2013	1.1045	0.3811	5191	0.4133	0.1951	0.1236	14.2	0.6189	0.8238
Peru	2014	1.1215	0.3752	5229	0.4109	0.1919	0.1206	14.3	0.6248	0.8211
Peru	2015	1.1168	0.3747	5207	0.4107	0.1899	0.1188	14.3	0.6253	0.8267
Peru	2016	1.1348	0.3797	5317	0.4113	0.1903	0.1187	14.6	0.6203	0.8239
Peru	2017	1.1495	0.3730	5248	0.4085	0.1882	0.1169	14.4	0.6270	0.8185
Peru	2018	1.1782	0.3784	5225	0.4072	0.1861	0.1146	14.3	0.6216	0.8154
Peru	2019	1.1910	0.3703	5376	0.4048	0.1826	0.1115	14.7	0.6297	0.8148
Poland	1986	2.4094	0.2768	8201	0.3252	0.0887	0.0359	22.5	0.7232	0.8013
Poland	1992	2.5450	0.2566	7957	0.3382	0.0830	0.0308	21.8	0.7434	0.8368
Poland	1995	1.7125	0.2594	6331	0.3702	0.1136	0.0523	17.3	0.7406	0.8520
Poland	1999	1.9489	0.2479	7753	0.3628	0.1018	0.0432	21.2	0.7521	0.8531
Poland	2004	1.8788	0.2803	7590	0.3677	0.1095	0.0484	20.8	0.7197	0.8443
Poland	2005	1.9317	0.2810	7665	0.3658	0.1072	0.0467	21.0	0.7190	0.8436
Poland	2006	1.8911	0.2746	8375	0.3672	0.1080	0.0474	22.9	0.7254	0.8468
Poland	2007	1.9491	0.2770	9146	0.3676	0.1052	0.0451	25.1	0.7230	0.8511
Poland	2008	1.9598	0.2787	10028	0.3651	0.1055	0.0455	27.5	0.7213	0.8451
Poland	2009	1.9593	0.2773	10298	0.3642	0.1055	0.0455	28.2	0.7227	0.8437
Poland	2010	2.0295	0.2841	10591	0.3620	0.1033	0.0439	29.0	0.7159	0.8412
Poland	2011	1.9334	0.2778	10635	0.3661	0.1066	0.0462	29.1	0.7222	0.8459
Poland	2012	1.8650	0.2773	10610	0.3683	0.1096	0.0485	29.1	0.7227	0.8463
Poland	2013	1.8178	0.2761	10759	0.3701	0.1115	0.0500	29.5	0.7239	0.8479
Poland	2014	1.8263	0.2711	11257	0.3689	0.1105	0.0494	30.8	0.7289	0.8479
Poland	2015	1.8351	0.2626	11807	0.3669	0.1091	0.0485	32.3	0.7374	0.8475
Poland	2016	1.9390	0.2477	13070	0.3644	0.1016	0.0430	35.8	0.7523	0.8569
Poland	2017	1.9798	0.2449	14029	0.3652	0.0988	0.0409	38.4	0.7551	0.8637
Poland	2018	1.8631	0.2448	14693	0.3671	0.1028	0.0442	40.3	0.7552	0.8648
Poland	2019	1.7942	0.2387	15582	0.3651	0.1052	0.0463	42.7	0.7613	0.8611
Poland	2020	1.6077	0.2353	15951	0.3614	0.1135	0.0540	43.7	0.7648	0.8505
Romania	1995	2.1349	0.2522	4280	0.3538	0.0959	0.0391	11.7	0.7478	0.8431
Romania	1997	2.1263	0.2489	3949	0.3565	0.0954	0.0386	10.8	0.7512	0.8495
Russia	2000	1.4176	0.3741	3591	0.3960	0.1540	0.0838	9.8	0.6259	0.8307
Russia	2004	1.4442	0.3488	5899	0.3877	0.1498	0.0811	16.2	0.6512	0.8187
Russia	2007	1.5438	0.3093	8463	0.3713	0.1371	0.0717	23.2	0.6907	0.8046
Russia	2010	1.5230	0.2923	10592	0.3789	0.1324	0.0671	29.0	0.7077	0.8356
Russia	2011	1.9300	0.3739	12554	0.3505	0.1180	0.0565	34.4	0.6261	0.7803
Russia	2013	1.9152	0.3443	15087	0.3579	0.1162	0.0542	41.3	0.6557	0.8034
Russia	2014	2.0133	0.3425	14637	0.3479	0.1108	0.0508	40.1	0.6575	0.7923
Russia	2015	2.1581	0.3490	13361	0.3325	0.1039	0.0468	36.6	0.6510	0.7730
Russia	2016	2.2742	0.3582	12699	0.3250	0.0991	0.0437	34.8	0.6418	0.7661
Russia	2017	2.2278	0.3349	12785	0.3311	0.0998	0.0437	35.0	0.6651	0.7805
Russia	2018	2.7760	0.3865	12116	0.2883	0.0804	0.0328	33.2	0.6135	0.7306
Russia	2019	2.3435	0.3401	13166	0.3311	0.0956	0.0402	36.1	0.6599	0.7880
Serbia	2006	1.3743	0.2825	6042	0.3782	0.1440	0.0782	16.6	0.7176	0.8200
Serbia	2010	1.4467	0.2671	6765	0.3728	0.1349	0.0706	18.5	0.7329	0.8243
Serbia	2013	1.4494	0.2762	6254	0.3761	0.1351	0.0703	17.1	0.7238	0.8312
Serbia	2016	1.4777	0.2661	7106	0.3721	0.1324	0.0683	19.5	0.7339	0.8262
Slovakia	1992	3.0835	0.1710	7953	0.3331	0.0630	0.0190	21.8	0.8290	0.8789
Slovakia	1996	1.6863	0.2033	7648	0.3501	0.1049	0.0481	21.0	0.7967	0.8476
Slovakia	2004	2.0011	0.2285	8153	0.3567	0.0975	0.0405	22.3	0.7715	0.8520
Slovakia	2007	2.0638	0.2140	10613	0.3512	0.0935	0.0381	29.1	0.7860	0.8511
Slovakia	2010	1.8336	0.2202	11531	0.3571	0.1031	0.0452	31.6	0.7798	0.8486
Slovakia	2013	1.7312	0.2224	11324	0.3590	0.1071	0.0485	31.0	0.7776	0.8498
Slovakia	2014	1.7227	0.1999	11376	0.3500	0.1044	0.0474	31.2	0.8001	0.8423
Slovakia	2015	1.7735	0.2024	11532	0.3515	0.1024	0.0456	31.6	0.7976	0.8467
Slovakia	2016	1.8012	0.1887	12072	0.3461	0.0986	0.0432	33.1	0.8113	0.8477
Slovakia	2017	1.8789	0.1793	12622	0.3409	0.0950	0.0407	34.6	0.8207	0.8428
Slovakia	2018	1.8063	0.1945	12649	0.3465	0.1009	0.0447	34.7	0.8055	0.8387
Slovenia	1997	2.0335	0.1912	14159	0.3473	0.0907	0.0367	38.8	0.8088	0.8562

Country	Year	ε	A_ε	EDEI	FGT_0	FGT_1	FGT_2	$/day	p	p*
Slovenia	1999	1.9727	0.1907	14280	0.3482	0.0922	0.0379	39.1	0.8093	0.8574
Slovenia	2004	2.1105	0.1982	15846	0.3468	0.0896	0.0357	43.4	0.8018	0.8534
Slovenia	2007	2.0425	0.1938	17182	0.3457	0.0914	0.0372	47.1	0.8062	0.8504
Slovenia	2010	1.6356	0.2034	17930	0.3506	0.1091	0.0514	49.1	0.7966	0.8374
Slovenia	2012	1.7970	0.2295	17750	0.3572	0.1074	0.0484	48.6	0.7705	0.8383
Slovenia	2015	2.0187	0.2341	17985	0.3490	0.0990	0.0421	49.3	0.7659	0.8332
South Africa	2008	1.2856	0.7724	2902	0.4239	0.2169		8.0	0.2276	0.7910
South Africa	2012	1.6302	0.7362	2950	0.3393	0.1623	0.1010	8.1	0.2638	0.6060
South Africa	2015	1.4975	0.6884	3652	0.3716	0.1790	0.1119	10.0	0.3116	0.6834
South Africa	2017	1.7103	0.7345	3348	0.3239	0.1516	0.0930	9.2	0.2655	0.5813
South Korea	2006	1.4919	0.2494	17161	0.3668	0.1284	0.0656	47.0	0.7506	0.8247
South Korea	2008	1.4829	0.2571	17440	0.3691	0.1306	0.0672	47.8	0.7429	0.8241
South Korea	2010	1.4204	0.2487	17835	0.3672	0.1327	0.0697	48.9	0.7513	0.8225
South Korea	2012	1.4213	0.2455	18862	0.3660	0.1320	0.0693	51.7	0.7545	0.8220
South Korea	2014	1.4544	0.2432	19536	0.3652	0.1294	0.0670	53.5	0.7568	0.8232
South Korea	2016	1.4388	0.2426	19964	0.3648	0.1293	0.0672	54.7	0.7574	0.8257
Spain	1980	1.8002	0.2900	10637	0.3640	0.1164	0.0543	29.1	0.7100	0.8242
Spain	1985	1.9986	0.2962	10213	0.3596	0.1066	0.0465	28.0	0.7038	0.8294
Spain	1990	1.9480	0.2776	13267	0.3567	0.1074	0.0476	36.3	0.7224	0.8258
Spain	1995	1.5617	0.3129	15106	0.3789	0.1342	0.0681	41.4	0.6871	0.8267
Spain	2000	1.7097	0.3045	18275	0.3689	0.1237	0.0599	50.1	0.6955	0.8208
Spain	2004	1.5490	0.2708	18127	0.3700	0.1292	0.0653	49.7	0.7292	0.8228
Spain	2007	1.6204	0.2624	20015	0.3660	0.1231	0.0604	54.8	0.7377	0.8245
Spain	2010	1.4269	0.2775	18054	0.3746	0.1396	0.0744	49.5	0.7225	0.8171
Spain	2013	1.4249	0.2902	17700	0.3780	0.1420	0.0760	48.5	0.7098	0.8184
Spain	2016	1.3566	0.2790	19086	0.3777	0.1444	0.0788	52.3	0.7210	0.8205
Sudan	2009	1.2949	0.5027	1684	0.4175	0.1853		4.6	0.4973	0.8314
Sweden	1967	1.4679	0.2121	8591	0.3470	0.1183	0.0601	23.5	0.7879	0.8254
Sweden	1975	1.9658	0.1759	12304	0.3407	0.0908	0.0375	33.7	0.8241	0.8498
Sweden	1981	2.1383	0.1614	12723	0.3362	0.0824	0.0318	34.9	0.8386	0.8599
Sweden	1987	1.9125	0.1668	13495	0.3372	0.0898	0.0374	37.0	0.8332	0.8535
Sweden	1992	1.8307	0.1840	15748	0.3443	0.0956	0.0412	43.1	0.8160	0.8531
Sweden	1995	1.8139	0.1787	14731	0.3377	0.0932	0.0403	40.4	0.8213	0.8567
Sweden	2000	1.9570	0.2083	17237	0.3550	0.0949	0.0393	47.2	0.7917	0.8612
Sweden	2005	2.1275	0.1997	19676	0.3496	0.0887	0.0348	53.9	0.8003	0.8599
Switzerland	1982	1.8437	0.2642	28589	0.3738	0.1047	0.0451	78.3	0.7358	0.8728
Switzerland	1992	1.8269	0.2494	29524	0.3683	0.1053	0.0460	80.9	0.7506	0.8624
Switzerland	2000	1.9894	0.2444	28831	0.3610	0.0998	0.0418	79.0	0.7556	0.8529
Switzerland	2002	2.2910	0.2566	29663	0.3433	0.0912	0.0363	81.3	0.7434	0.8313
Switzerland	2004	1.9519	0.2264	29373	0.3561	0.0994	0.0421	80.5	0.7736	0.8486
Switzerland	2006	1.8798	0.2622	30552	0.3661	0.1069	0.0468	83.7	0.7378	0.8489
Switzerland	2007	1.8621	0.2679	31087	0.3686	0.1080	0.0474	85.2	0.7322	0.8515
Switzerland	2008	1.9146	0.2700	31134	0.3648	0.1067	0.0465	85.3	0.7300	0.8446
Switzerland	2009	1.9423	0.2603	31457	0.3629	0.1042	0.0448	86.2	0.7397	0.8465
Switzerland	2010	1.9127	0.2579	31743	0.3636	0.1051	0.0456	87.0	0.7421	0.8473
Switzerland	2011	2.0699	0.2634	32149	0.3543	0.1000	0.0421	88.1	0.7366	0.8354
Switzerland	2012	2.1317	0.2577	33214	0.3547	0.0966	0.0395	91.0	0.7423	0.8426
Switzerland	2013	2.2197	0.2765	31668	0.3540	0.0951	0.0382	86.8	0.7235	0.8404
Switzerland	2014	2.1549	0.2759	31912	0.3544	0.0977	0.0401	87.4	0.7241	0.8372
Switzerland	2015	2.1042	0.2685	31999	0.3564	0.0988	0.0410	87.7	0.7315	0.8403
Switzerland	2016	1.9150	0.2605	32729	0.3645	0.1052	0.0455	89.7	0.7395	0.8482
Switzerland	2017	1.9687	0.2635	32813	0.3635	0.1033	0.0440	89.9	0.7365	0.8483
Switzerland	2018	1.8581	0.2600	32259	0.3658	0.1077	0.0475	88.4	0.7400	0.8476
Taiwan	1981	3.4524	0.3188	8451	0.2839	0.0634	0.0213	23.2	0.6812	0.7795
Taiwan	1986	2.8949	0.2843	11512	0.3235	0.0754	0.0265	31.5	0.7157	0.8226
Taiwan	1991	3.2029	0.3173	17651	0.2901	0.0684	0.0242	48.4	0.6827	0.7777
Taiwan	1995	1.6797	0.2511	23011	0.3675	0.1151	0.0538	63.0	0.7489	0.8456
Taiwan	1997	2.5117	0.2992	22431	0.3275	0.0870	0.0343	61.5	0.7008	0.8044

Country	Year	ε	A_ε	EDEI	FGT_0	FGT_1	FGT_2	$/day	p	p*
Taiwan	2000	2.3447	0.2884	23650	0.3389	0.0921	0.0371	64.8	0.7116	0.8168
Taiwan	2005	2.1386	0.2956	23861	0.3503	0.1006	0.0426	65.4	0.7044	0.8216
Taiwan	2007	2.2581	0.3131	21791	0.3374	0.0972	0.0411	59.7	0.6869	0.8008
Taiwan	2010	1.8402	0.2904	20966	0.3629	0.1142	0.0526	57.4	0.7096	0.8251
Taiwan	2013	1.8362	0.2763	22304	0.3657	0.1119	0.0505	61.1	0.7237	0.8375
Taiwan	2016	2.0441	0.2863	23510	0.3546	0.1038	0.0448	64.4	0.7137	0.8260
United Kingdom	1969	2.8006	0.2808	8874	0.3215	0.0775	0.0281	24.3	0.7192	0.8159
United Kingdom	1974	2.3705	0.2581	11568	0.3381	0.0887	0.0348	31.7	0.7419	0.8267
United Kingdom	1979	2.1198	0.2479	12270	0.3430	0.0968	0.0407	33.6	0.7521	0.8232
United Kingdom	1986	1.7770	0.2636	12616	0.3628	0.1140	0.0527	34.6	0.7364	0.8309
United Kingdom	1991	1.9006	0.3250	13622	0.3541	0.1154	0.0541	37.3	0.6750	0.7997
United Kingdom	1994	2.1743	0.3464	14748	0.3448	0.1032	0.0449	40.4	0.6537	0.7991
United Kingdom	1995	2.1783	0.3444	14715	0.3432	0.1029	0.0448	40.3	0.6556	0.7967
United Kingdom	1996	2.4139	0.3593	14835	0.3236	0.0937	0.0395	40.6	0.6407	0.7742
United Kingdom	1997	2.2555	0.3486	15607	0.3361	0.0997	0.0430	42.8	0.6514	0.7882
United Kingdom	1998	2.2673	0.3588	16064	0.3345	0.0998	0.0432	44.0	0.6412	0.7833
United Kingdom	1999	2.1320	0.3456	16742	0.3478	0.1051	0.0461	45.9	0.6544	0.8017
United Kingdom	2000	2.1360	0.3616	18010	0.3529	0.1058	0.0460	49.3	0.6384	0.8085
United Kingdom	2001	2.0414	0.3434	19096	0.3599	0.1088	0.0479	52.3	0.6566	0.8197
United Kingdom	2002	2.0014	0.3202	19544	0.3616	0.1087	0.0478	53.5	0.6798	0.8266
United Kingdom	2003	2.0203	0.3192	19933	0.3596	0.1078	0.0473	54.6	0.6808	0.8242
United Kingdom	2004	2.0469	0.3193	20626	0.3613	0.1063	0.0459	56.5	0.6807	0.8298
United Kingdom	2005	2.0239	0.3236	20818	0.3619	0.1078	0.0470	57.0	0.6764	0.8281
United Kingdom	2006	1.9638	0.3234	21189	0.3657	0.1105	0.0489	58.1	0.6766	0.8313
United Kingdom	2007	1.9734	0.3195	21453	0.3614	0.1102	0.0490	58.8	0.6805	0.8239
United Kingdom	2008	1.9762	0.3182	21561	0.3629	0.1097	0.0485	59.1	0.6818	0.8280
United Kingdom	2009	2.0161	0.3211	21398	0.3634	0.1078	0.0469	58.6	0.6789	0.8315
United Kingdom	2010	2.0260	0.3018	21145	0.3620	0.1055	0.0453	57.9	0.6982	0.8352
United Kingdom	2011	2.1390	0.3035	20634	0.3538	0.1011	0.0426	56.5	0.6965	0.8262
United Kingdom	2012	2.0222	0.2921	20918	0.3617	0.1047	0.0448	57.3	0.7079	0.8372
United Kingdom	2013	2.1845	0.2983	20663	0.3480	0.0990	0.0415	56.6	0.7017	0.8196
United Kingdom	2014	2.0155	0.2952	21487	0.3595	0.1056	0.0457	58.9	0.7048	0.8311
United Kingdom	2015	1.9865	0.2947	21752	0.3606	0.1069	0.0467	59.6	0.7053	0.8312
United Kingdom	2016	1.9108	0.2842	22150	0.3625	0.1094	0.0487	60.7	0.7158	0.8330
United Kingdom	2017	2.0296	0.2924	21995	0.3546	0.1051	0.0458	60.3	0.7076	0.8228
United Kingdom	2018	1.9532	0.2957	22398	0.3616	0.1087	0.0480	61.4	0.7044	0.8304
United States	1974	1.4389	0.2550	23854	0.3694	0.1325	0.0691	65.4	0.7450	0.8253
United States	1979	1.4518	0.2579	24676	0.3700	0.1328	0.0691	67.6	0.7421	0.8236
United States	1980	1.4970	0.2587	23271	0.3686	0.1305	0.0670	63.8	0.7413	0.8214
United States	1981	1.4724	0.2665	22545	0.3709	0.1339	0.0697	61.8	0.7335	0.8197
United States	1982	1.4392	0.2793	22482	0.3746	0.1390	0.0738	61.6	0.7207	0.8173
United States	1983	1.3155	0.2819	22938	0.3789	0.1495	0.0836	62.8	0.7181	0.8144
United States	1984	1.3436	0.2853	23701	0.3793	0.1478	0.0817	64.9	0.7147	0.8161
United States	1985	1.3248	0.2856	24054	0.3801	0.1490	0.0828	65.9	0.7144	0.8174
United States	1986	1.3143	0.2859	24815	0.3803	0.1502	0.0840	68.0	0.7141	0.8160
United States	1987	1.4289	0.2846	25570	0.3760	0.1410	0.0753	70.1	0.7154	0.8163
United States	1988	1.4626	0.2928	25490	0.3762	0.1399	0.0741	69.8	0.7072	0.8158
United States	1989	1.4951	0.2984	25729	0.3767	0.1380	0.0721	70.5	0.7016	0.8185
United States	1990	1.4895	0.2964	25085	0.3765	0.1381	0.0723	68.7	0.7036	0.8184
United States	1991	1.5062	0.2986	24722	0.3751	0.1375	0.0718	67.7	0.7014	0.8153
United States	1992	1.4613	0.3008	24690	0.3783	0.1411	0.0749	67.6	0.6992	0.8173
United States	1993	1.4715	0.3156	24528	0.3820	0.1421	0.0751	67.2	0.6844	0.8221
United States	1994	1.4709	0.3124	25037	0.3822	0.1412	0.0743	68.6	0.6876	0.8250
United States	1995	1.4956	0.3086	25472	0.3811	0.1383	0.0718	69.8	0.6914	0.8274
United States	1996	1.5098	0.3115	25604	0.3804	0.1380	0.0715	70.1	0.6885	0.8253
United States	1997	1.4666	0.3103	26378	0.3830	0.1405	0.0737	72.3	0.6897	0.8291
United States	1998	1.4203	0.3006	27472	0.3826	0.1424	0.0759	75.3	0.6994	0.8285
United States	1999	1.4234	0.3023	28139	0.3829	0.1424	0.0757	77.1	0.6977	0.8290

Country	*Year*	*ε*	A_ε	*EDEI*	FGT_0	FGT_1	FGT_2	*$/day*	*p*	*p**
United States	2000	1.4412	0.3019	28372	0.3828	0.1403	0.0739	77.7	0.6981	0.8321
United States	2001	1.4060	0.3035	28180	0.3841	0.1433	0.0766	77.2	0.6965	0.8316
United States	2002	1.4047	0.3067	28278	0.3845	0.1447	0.0777	77.5	0.6933	0.8289
United States	2003	1.3847	0.3141	28553	0.3866	0.1479	0.0803	78.2	0.6859	0.8277
United States	2004	1.3608	0.3039	28816	0.3851	0.1475	0.0805	78.9	0.6961	0.8287
United States	2005	1.3740	0.3161	28950	0.3880	0.1480	0.0804	79.3	0.6839	0.8323
United States	2006	1.3962	0.3208	29149	0.3883	0.1472	0.0794	79.9	0.6792	0.8319
United States	2007	1.4092	0.3155	29172	0.3861	0.1460	0.0785	79.9	0.6845	0.8286
United States	2008	1.3901	0.3165	28405	0.3871	0.1476	0.0800	77.8	0.6835	0.8290
United States	2009	1.4428	0.3161	28784	0.3852	0.1431	0.0758	78.9	0.6839	0.8300
United States	2010	1.4285	0.3150	28261	0.3842	0.1452	0.0779	77.4	0.6850	0.8237
United States	2011	1.4351	0.3282	27979	0.3868	0.1465	0.0785	76.7	0.6718	0.8258
United States	2012	1.4326	0.3277	28081	0.3866	0.1467	0.0788	76.9	0.6723	0.8250
United States	2013	1.4319	0.3274	28026	0.3871	0.1464	0.0784	76.8	0.6726	0.8270
United States	2014	1.3695	0.3320	28095	0.3919	0.1506	0.0822	77.0	0.6680	0.8353
United States	2015	1.3923	0.3290	29107	0.3905	0.1484	0.0802	79.7	0.6710	0.8345
United States	2016	1.3656	0.3272	30524	0.3907	0.1508	0.0826	83.6	0.6728	0.8322
United States	2017	1.3543	0.3271	30888	0.3905	0.1529	0.0844	84.6	0.6729	0.8278
United States	2018	1.3526	0.3319	32378	0.3921	0.1528	0.0842	88.7	0.6681	0.8322
United States	2019	1.3660	0.3369	34264	0.3926	0.1528	0.0839	93.9	0.6631	0.8316
United States	2020	1.4636	0.3247	35621	0.3859	0.1429	0.0754	97.6	0.6753	0.8295
Uruguay	2004	2.2296	0.5035	4617	0.3188	0.1074	0.0509	12.6	0.4965	0.7122
Uruguay	2005	2.0714	0.4706	5052	0.3381	0.1155	0.0554	13.8	0.5294	0.7446
Uruguay	2006	2.8275	0.5505	4686	0.2678	0.0809	0.0349	12.8	0.4495	0.6534
Uruguay	2007	3.1999	0.5770	4619	0.2373	0.0679	0.0280	12.7	0.4230	0.6166
Uruguay	2008	2.9712	0.5627	5176	0.2481	0.0743	0.0320	14.2	0.4373	0.6230
Uruguay	2009	3.0231	0.5542	5614	0.2458	0.0726	0.0309	15.4	0.4458	0.6251
Uruguay	2010	3.3419	0.5534	5680	0.2297	0.0636	0.0256	15.6	0.4466	0.6187
Uruguay	2011	2.8885	0.4857	6992	0.2698	0.0781	0.0327	19.2	0.5143	0.6784
Uruguay	2012	3.3263	0.5147	6567	0.2158	0.0605	0.0249	18.0	0.4853	0.6053
Uruguay	2013	2.5680	0.4477	7757	0.2952	0.0896	0.0390	21.3	0.5524	0.7102
Uruguay	2014	2.7422	0.4561	7917	0.2791	0.0825	0.0352	21.7	0.5439	0.6922
Uruguay	2015	2.5366	0.4405	8251	0.2963	0.0905	0.0397	22.6	0.5595	0.7117
Uruguay	2016	2.9258	0.4665	7806	0.2653	0.0761	0.0316	21.4	0.5335	0.6782
Uruguay	2017	3.0721	0.4755	8008	0.2568	0.0717	0.0291	21.9	0.5245	0.6709
Uruguay	2018	3.2787	0.4940	7568	0.2397	0.0653	0.0260	20.7	0.5060	0.6494
Uruguay	2019	3.4206	0.5098	7235	0.2252	0.0607	0.0240	19.8	0.4902	0.6286
Vietnam	2005	3.4266	0.4745	3315	0.2558	0.0647	0.0240	9.1	0.5255	0.6924
Vietnam	2007	3.1371	0.4929	4078	0.2773	0.0733	0.0282	11.2	0.5071	0.7089
Vietnam	2009	2.9768	0.4885	4334	0.2785	0.0771	0.0309	11.9	0.5115	0.7009
Vietnam	2011	2.7098	0.4330	5222	0.2924	0.0844	0.0352	14.3	0.5670	0.7203
Vietnam	2013	2.5153	0.4060	5602	0.3025	0.0906	0.0392	15.3	0.5940	0.7309